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Designing a Saudization Teaching Artifact

Improving Soft Skills Education and Knowledge Transfer for Saudization Vocational Education and Training (VET)

Dagmar Dayna Knot

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Institute of International Education
Department of Education

Abstract

The need to develop a sustainable economy that demands less reliance on the labor of foreign nationals is a growing concern for the Arabian Gulf region. This is especially true for the Kingdom of Saudi Arabia, which has begun a campaign of improving local occupational opportunities for Saudi nationals via Saudization vocational education and training (VET) programs and policies. However, these Saudization programs have met with a great deal of criticism in light of their inability to bequeath nationals with the sorts of soft skills essential to sustained and improved economic productivity demanded by industry employers. This study aimed at addressing this lack of soft skills education within Saudization VET programs by employing educational design research (EDR) methodology to design and refine a possible soft skills teaching artifact by quantitatively evaluating data collected from questionnaires distributed to various experts involved in Saudization programs. This artifact refinement process would ensure designing a more suitable artifact geared at improving the learning and knowledge transfer of soft skills competency from the classroom into the workplace. This teaching artifact focused on the use of hidden curricula, via strategies such as mimetic learning and the improved role of the teacher as an exemplar for soft skills good practice, in guiding the social learning of appropriate attitudes and behaviors for the workplace. The results of this study revealed a good deal of support from Saudization practitioners, administrators, and former students, on the effectiveness of employing this artifact within the Saudization VET context they were embedded in. When asked to refine the proposed artifact, the research participants made minor changes that focused on the particular soft skills selected as objects of learning while maintaining a strong emphasis on the merit of the modeling role of the teacher. The results of this refinement process revealed a set of guidelines, termed an intervention theory, which would ensure the successful application of the artifact within its context. The intervention theory devised in this study highlighted that the inclusion of soft skills within the artifact needed to be adjustable based on employer demands and that prospective Saudization teachers needed to be better prepared for their new roles as soft skills exemplars. Future experimental trials applying this artifact within a Saudization VET classroom will serve to conclusively evaluate the impact this designed artifact will have on improving soft skills education.

Keywords: Saudization, vocational education and training (VET), soft skills, educational design research (EDR), hidden curriculum, mimetic learning, role of the teacher

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EDR	Educational Design Research
HRDF	Human Resources Development Fund (Saudi Arabian)
IP	Internet Protocol
KSA	Kingdom of Saudi Arabia
KT	Knowledge Transfer
MoL	Ministry of Labor (Saudi Arabian)
QR	Quick Response
RST	Rentier State Theory
SPSS	Statistical Package for the Social Sciences
VET	Vocational Education and Training

Acknowledgments

The completion of this study was the accomplishment of a research goal three years in the making. This study was inspired by the positive growth and development I was able to witness during my time as an administrator and practitioner for one particular Saudization VET program that allowed for dramatic educational reforms to the teaching and learning of work-related soft skills. It is my sincerest hope that the results of this study will serve to better improve the educational condition of Saudization VET and to inspire more confidence in young Saudis seeking to better themselves and become more globally competitive in their occupational endeavors.

A number of people served to guide and direct me during the course of this study. First, I would like to thank my supervisor, Ulf Fredriksson, for not only allowing me the freedom to pursue this project in a manner that broke with traditional educational research, but who also guided me when necessary by sharing his knowledge and expertise within the field of educational research. With both his diligent and demanding support I was able to make this project more robust than would have otherwise been possible. I would also like to thank another member of Stockholm University's Institute of International Education (IIE) staff, Mikiko Cars. Although she was not formally engaged in this project, she continuously inspired me to maintain my confidence in the work I was pursing and my ability to accomplish it. I would also like to thank Erik Perjons, from Stockholm University's Department of Computer and Systems Science, for sharing his knowledge of design research methodology. I would like to formally thank my many academic inspirations for helping me to grow as a fledgling academic and educational researcher.

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Dedication

To our dearly missed instructor, colleague, and friend.

“Mr. Wilson”

1965 - 2013

Chapter One
Introduction

Since the 1990s, the Kingdom of Saudi Arabia (KSA) has recognized its need to address growing youth unemployment resulting from the kingdom's dependency on a domestic labor market saturated by foreign nationals (Sultan, 2012). In order to decrease unemployment, by means of substituting foreign workers with local labor, national development plans launched and promoted employment nationalization schemes and policies that came to be known as Saudization (Long and Maisel, 2010). One initiative espoused by Saudization polices was based on the production of suitable employees via education and training at various vocational institutes usually directed and overseen by large industries in need of specific labor (Madhi and Barrientos, 2003). It is this vocational agenda of Saudization that motivated and grounded the focus of this study.

Despite Saudization training programs targeting education and training for the technical/hard skills needed to execute particular jobs, a problematic lack of soft skills impacted both productivity and employer satisfaction with newly hired nationals substituting previously effective and efficient foreign expatiates (World Bank Group [WBG], 2012). Soft skills are the professional behaviors and attitudes that aid in accomplishing a job and include work ethic, time management, motivation, and critical thinking, to name a few (Grugulis, 2007). Currently, many Arab youth, based on past experiences at school and in the workplace, indicate that soft skills are of little value or relevance to occupational success despite employers maintaining the opposite opinion (ibid.). As more and more Saudi nationals enter the domestic labor market it is of increasing importance to ensure that the skills and attitudes they display in the occupational setting are both desired by local employers and are the kinds of skills that ensure industrial productivity is not negatively impacted by Saudization agendas. The educational component of Saudization is a key element to ensuring that Saudi nationals are trained in such a relevant manner. Therefore, in order to improve the educational and training aspects of Saudization it is essential to address the lack of, or poorly conceived, soft skills education conducted within these programs. With improved soft skills education it is hoped that more nationals can succeed in a local labor market that has grown accustomed to foreign national labor practices and work ethic (Khan, 2008).

Despite concerns with lacking Saudization soft skills education being reiterated by professionals and Arab media, little research into fully identifying and exploring an educational solution to the problem currently exists (WBG, 2012). For this reason it is important to work with a research strategy that is best suited to experimental conditions where the existence of limited prior data or literature are not impediments to an effective and informative study. Consequently, educational design research (EDR) methodology, which is well-suited to projects that have little pre-discovered solutions or theories for experimental testing, was used in this study (Kelly, Baek, Lesh, and Bannan-Ritland, 2008). Using EDR allows a researcher to first attempt the design of an intervention based on a theoretical or practical understanding of the problem and then

refining it based on professional feedback before finally testing the intervention/artifact in a particular context to assess its effectiveness (Clements, 2008).

The purpose of this particular EDR study served to investigate a particular teaching intervention geared at improving Saudization programs. This study investigated a teaching intervention that was designed and implemented by this researcher when serving as a Saudization administrator and instructor. Two Saudization programs were redesigned to incorporate a dramatic set of soft skills educational changes. These changes, when evaluated at the end of the instructional term, appeared to yield positive results with respect to program graduates' abilities to both better understand the relevance of soft skills in addition to their knowledge transfer of soft skills competency from the educational to the occupational setting. These positive results inspired this researcher to refine the originally designed intervention based on feedback from practitioners and former students of this Saudization program. The purpose of this investigation was to scrutinize the results of the intervention in a more rigorous manner than was available from a mere self-evaluation report. It is anticipated that by better understanding the intervention within the context examined in this study, that a future generalized intervention can be applied beyond the contexts of the original two cases that spawned the changes and investigation being examined here.

1.1 Background: Personal Experience

This study stems from the past experience of this researcher in implementing Saudization soft skills educational changes, which served as the foundation for the generated teaching intervention being evaluated in this study. Furthermore, past experiences within the cultural, occupational, and educational context of Saudi Arabia has provided this researcher with a better understanding of the milieu underpinning this study and the people and issues being investigated, which can aid in better understanding the subtle realities framing the study.

Between 2011 and 2012, this researcher was employed in the KSA as both an administrator and practitioner (i.e., instructor) for two Saudization programs linked to a public sector allied-health training institution under the umbrella of a larger health-industry organization. During this time it became apparent that greater success for Saudi nationals would hinge on their ability to compete with foreign expatriates in terms of technical skills, knowledge, productivity, and work ethic. This assertion was based on interviews and feedback meetings with employers and coworkers assessing recently graduated students who had been working for one year. Unfortunately, the results of these interviews were placed within a quality assessment report that, for security and legal reasons, cannot be released to persons outside the particular institution in which these programs and interviews took place. During these quality assessment meetings, employers from various departmental sectors within the organization consistently mentioned a desire for improved soft skills training relating to work ethic as these skills were manifested by expatriate staff but not by their national replacements. According to these meetings, if employers were to be satisfied with Saudi replacements, and in order to maintain routine productivity levels with new Saudi employees, it was essential to

ensure that soft skills were taught in a more effective manner that ensured their utilization within the workplace.

With this goal in mind significant adjustments were put in place for the autumn 2011 to spring 2012 semesters for a group of sixteen (16) students. The changes that took place were based on the personal belief of this researcher that incorporating soft skills into everyday student practices, instead of only being taught theoretically, would entrench these behaviors within a student's psyche and eventually become habitual as students developed professionally. The changes were founded on redefining the role of the teacher in the classroom to serve as a model of professional behavior and who created an atmosphere mimicking a strict working environment requiring punctuality, accountability, motivation, problem solving, and teamwork. Simply put, students were made to perceive their roles as employees rather than students and began developing soft skills based on classroom culture and performance under the guidance of instructors who served the dual purpose of being both occupational supervisors to the students and model exemplar employees for the institutions employing them. The students were made aware that their academic records and assessment would reflect performance on classroom tasks in addition to their demonstration of professional attributes in everyday classroom behavior. An employer, when hiring a student, would be provided with a profile of student performance based on grades in the form of standard academic transcripts in addition to a performance evaluation form similar to related documents used for annual employee appraisal of skills and attitude. This made the employers, and students, aware of the soft skills expectations the students were meant to uphold in future occupational practice. Despite initial student resistance, upon completion of the program all the students had come to understand the virtues of the soft skills they had been encouraged to adopt. When the students moved into the workplace, they found significant reward and praise for their soft skills competency. This information, regarding student soft skills aptitude in the workplace, was gathered from employer evaluations of students during three-month practicums that were organized as part of the program. The impressions students had about the program and its novel soft skills instruction were gathered during interviews aimed at gathering feedback and general program evaluations. Again, this data cannot be released outside the organization.

This practical experience with real Saudization program modifications inspired this researcher to examine the success of the educational soft skills changes attempted in the particular context discussed above. Based on the practical experience that drove the initial changes mentioned earlier, the proposed teaching intervention (examined in this study) was further subjected to academic reviews of theories and concepts that supported the logical assumptions that drove the original program changes. The proposed artifact combined this past experience with deeper background knowledge into some of the various educational strategies and theories that supported the merit of the artifact as an effective model for soft skills education. The final artifact was developed using a synthesis of theoretical and practical designing principles. With deeper analysis and examination into the generated artifact it was hoped that a formal educational teaching intervention could be designed and utilized for use by other Saudization programs seeking to better educate students about soft skills. The tentative intervention examined in this study was, in the process of this study, tested with more

rigorous methodology and input from various expert practitioners and former Saudization participants with both the goals of academic understanding and future practical development in mind. To see the artifact refer to Appendix 2.

1.2 Statement of the Problem

The overarching problem that gave rise to this project was the poor performance of Saudization VET programs that lacked effective soft skills training, which could better prepare graduates for successful acclimatization to a workplace previously accustomed to expatriate work culture and ethic. The problem addressed by this study was based on improving the output of Saudization programs by developing an effective teaching intervention, or strategy, for soft skills vocational education. This teaching strategy required identifying characteristics that must be present in the behavior and role of the teacher in addition to the educational environment they created. This search for characteristics is unique to EDR and is evident in the wording of the main research question, which implicitly addresses the core problem of how to effectively teach soft skills (Plomp, 2010). Therefore, the problem underpinning this study rested with identifying the characteristics of an effective teaching strategy aimed at improving the knowledge and incorporation of soft skills within the student output of Saudization programs in the KSA.

1.3 Aims and Objectives

The primary aim of this study was to design and refine an educational intervention geared at improving teaching strategies for the optimal knowledge transfer of soft skills from the educational to the occupational setting. In an EDR study, this is accomplished using an iterative process of multiple feedback and refinement stages to optimize the artifact for its context. In this study only the first iteration was undertaken. During this first iteration, the proposed characteristics of the intervention were assessed and adjusted based on feedback from selected participants, which were practitioners and former participants of a vocational education program within a particular Saudization institution selected as the study context. Some specific questions that drove this study included:

1) How would Saudization practitioners and former participants view soft skills and soft skills education regarding their value for the workplace and national VET programs?
2) How would these practitioners and former participants assess the various categories and characteristics of the originally designed intervention with respect to their effectiveness for soft skills education?
3) How can feedback from the research participants be evaluated and utilized to refine the original intervention/artifact for better ecological validity and impact?

Simply designing an intervention does not necessarily qualify as design research; two other peripheral objectives to this study were related to the general outputs derived

from EDR: 1) an intervention theory, and 2) professional development (Plomp, 2010). Therefore, two further objectives of this study were (respectively):

4) Identifying an intervention theory that determined why and how this intervention can best work within the particular context of a particular Saudization program.
5) The professional development of the research participants via personal reflexivity about their assessment of the intervention, which should inform their own perceptions and display of soft skills.

1.4 Scope and Limitations

Strict time restrictions forced the scope of this study to cover only the first three phases of a typical four-phase design research study. For this reason, the scope of this study was limited only to the design and refinement of an intervention and not the implementation and evaluation of the final intervention within a practical setting. Also, the nature of the iterative process within an EDR study is usually longitudinal in nature with various iterations taking place and therefore well beyond the scope of a study limited by strict time constraints. Therefore, only the first iteration cycle was undertaken and evaluated in this study.

The scope of this EDR study was also limited to the particular context of one Saudization program. This means that all the participants were from a public sector organization overseen by the Saudi Arabian Human Resources Development Fund (HRDF). It is hoped that future research can hopefully incorporate more private sector industries in which most expatriates are employed and where Saudization policies are more challenging to enforce (House, 2012).

All of the participants in this study were involved in the particular Saudization program that spawned the initial artifact investigated and refined during this study. In light of the proposed intervention being developed within the context of this same Saudization program, it was important that all of the participants were involved to best evaluate the intervention within its context. The narrow and specific context of the study, therefore, limited the overall number of possible participants available to contribute information because only a small number of practitioners and former students were, or currently are, involved in the program or with its accompanying employer. Also, due to the difficulty in gaining access to Saudi nationals willing to comment openly and critically about aspects of Saudi society, this study was subjected to fewer respondents than may have been available in more open cultures.

Finally, due to the complexity of attempting to secure personal interviews in a country with very limited access to non-nationals lacking domestic sponsorship, the use of electronic questionnaires trumped an attempt to conduct personal interviews, which meant that richer data resulting from qualitative interview-based modes of data collection was unavailable. The desire for participant anonymity and security meant that it was prudent to forego interviews via videoconferencing avenues or Skype. This study was therefore limited to the use of detailed questionnaires to collect data and opinions.

1.5 Significance of the Study

As Saudi Arabia strives to make its labor force globally competitive, many experts are looking to the education sector and vocational training institutions to address the current lack of economic productivity attributed to the limited skills and motivation of Saudi Arabia's substantial youth population (Niblock, 2007). The significance of this study served to provide one possible pedagogical innovation for improving the educational component of soft skills training in Saudization programs. By improving these skills it is anticipated that Saudi Arabia's labor market can prove domestically sustainable and globally competitive.

The limited scope of this study also allows for further research into the evaluation of the effectiveness and efficiency of the teaching intervention/artifact designed in this study. This implies continued study and investigation into the issues and problems that motivated this research. It is hoped, therefore, that the longitudinal and iterative nature of this study, implicit within the methodology used, will ensure continued research into the artifact generated and refined by this study. Also implicit within EDR methodology is the greater link between academia and practice (Plomp, 2010). This study can hopefully shed light on the merits of employing EDR methodology for practical attempts by educational researchers to impact the practice and evolution of teaching practices and policies.

It is also hoped that the intervention theory generated by this EDR investigation will promote the design and refinement of this soft skills artifact for generalization to culturally similar socio-economic Gulf countries. Neighboring states to Saudi Arabia, such as the United Arab Emirates and Qatar, struggle with employment nationalization program failures of their own that are rooted in similar problems that account for issues with Saudization program failures (Roux, 2011). This study can provide a model for improving employment nationalization in similar contexts, but also (with greater refinement within various contexts by contextually embedded experts) improving soft skills education in general.

Chapter Two
Context of the Study
The Kingdom of Saudi Arabia

The context of this study was situated not just within the minds of the researcher and participants involved, but also within the overall national context in which the participants were situated (Bryman, 2012). It is essential to describe the relevant intricacies and constraints the Kingdom of Saudi Arabia presents in order to better understand the origin and nature of the phenomenon under investigation in this study.

2.1 Saudi Arabia's Human Geography

The Kingdom of Saudi Arabia (KSA) is the largest country dominating the Arab Gulf region of the Middle East. Hot, harsh, deserts leave much of the country uninhabited with only the occasional nomadic Bedouin tribes eking out more traditional ways of living amidst the desolate terrain outside major cities. Majority of the population live in large, semi-industrialized, urban centers such as the capital city of Riyadh, the more liberal port city of Jeddah, the holy cities of Mecca and Medina, and Dammam (Long and Maisel, 2010).

Figure 1: Map of The Kingdom of Saudi Arabia (Wikipedia, 2014)

The country is generally homogenous with 90 percent of Saudis being of Arab ethnic descent and 100 percent adherence to the Muslim faith, which is the only religion legally tolerated within the Kingdom (House, 2012). The Muslim population of Saudi Arabia is not homogenous, however, but rather divided between the Sunni and Shia sects of Islam. The Shia minority comprises of roughly 10 percent of the Saudi

population with most inhabiting the oil-rich Eastern Province of the country close to the city of Dammam (Long and Maisel, 2010). Although Saudis have a sense of national identity, tribal networks based on familial heritage create apical socio-political networks and loyalties that heavily impact occupational and societal providence, which tends to breed a culture of entitlement for many Saudis citizens hailing from highly regarded tribes or families (ibid.).

The total population of the country is just under 27 million of which over 6 million (about 48 percent) are under the age of 24; another estimated 6 million non-national expatriates from various countries, most notably those in Asia and Africa, are included in these statistics as well (Central Intelligence Agency [CIA], 2013). Saudi Arabia is currently experiencing a 1.51 percent population growth rate that is impacting the demographics of the country and making Saudi Arabia one of the youngest populations in the world, which has recently resulted in significant youth dependency in the country (ibid.). A high youth dependency rate is placing strain on both the Kingdom's social services and the traditional family/tribal support structures catering to the lavish lifestyles of Saudi youths not encouraged or motivated to work (Long and Maisel, 2010). Many Saudi youths are accustomed to receiving luxury vehicles or designer clothes and accessories as part of their general upbringing regardless of their family's monetary security or occupational standing and are not motivated to pursue occupations that can help them secure these items for themselves; families generally support children for as long as is necessary which further curbs youth motivation for self-sufficiency (ibid.). It is this lack of motivation in addition to the shifting demographic and economic realities of 21st century Saudi Arabia that are resulting in problematic youth unemployment and creating the impetus for Saudization programs (ibid.). The current attitudes of unmotivated Saudi youths cannot be perpetuated in a society coming to grips with inflation and its related higher cost of living.

2.2 Saudi Arabia's History and Culture

The first Saudi Arabian state was established in 1745 under the political impetus of tribal leader Muhammad Al-Saud and the fundamentalist Islamic cleric Muhammad ibn Abd Al-Wahhab. This coalition established a symbiotic relationship between religious and political authorities and established the influence of Wahhabi Islam over issues related to jurisprudence (Sharia law), education, and social morality while the Al-Saud family, in turn, gained religious justification for their right to rule (House, 2012). The Kingdom was born as a theocratic oligarchy, which remains the current political structure of the state to this day (Long and Maisel, 2010). These historical origins underpin a unique socio-cultural atmosphere among the general population that is increasingly demanding modern social change and yet remains largely muted, under the guise of traditional piety, over the slow pace at which it is happening (House, 2012).

The modern state of Saudi Arabia (re-founded in 1932) is facing the evermore-apparent dualist conflicts between modernization and traditionalism resulting from the country's dramatic growth and development and the changing attitudes among younger generations of Saudi nationals who are beginning to dominate the demographic and

cultural landscape of the country (Cordesman, 2003). Many young Saudis (especially Shia minorities and women) are less complacent than previous generations and are demanding more social freedoms, government accountability, appropriate social services, better jobs, and opportunities for wealth acquisition (Roux, 2011). This significant population of frustrated, Internet-savvy, youth is drifting from traditional Saudi culture and religious adherence in favor of western music, foods, clothing, and even liberal and democratic socio-political ideologies (House, 2012). Despite tension and discontent among the youth of Saudi Arabia, dramatic social progress similar to what occurred in Egypt in 2011 is not taking place to openly destabilize the country. Societal pressure to appear wealthy, pious, modest, and happy keep many Saudi youth bound to traditions they may otherwise criticize in more liberal settings (ibid.). Additionally, continued financial dependence on family and wealthy members of the ruling class also keeps young Saudis subdued about radical social change lest they suffer economic hardships or occupational limitations as retribution for voicing opinions demanding social change (ibid.). With respect to conducting academic research about Saudi Arabia, it is this desire to maintain an appearance of piety and fear of retribution for radical opinions that can impact the ability to conduct social research that derive qualitative data from the opinions of Saudi nationals.

Overall, Saudi Arabia is a country rich in Islamic history and steeped in religious convictions. Many prototypical notions of the kingdom and its people reflect the strong influence religion has on various aspects of social, political, and cultural life. For example, women are forbidden to drive and remain under male guardianships for their entire lives, which can limit or restrict their educational, marital, or occupational opportunities (Long and Maisel, 2010). Gender segregation in all public settings (including schools and places of employment) is strictly enforced and Islamic religious police, called *mutawa*, patrol streets and public places to ensure a number of moral adherences, such as guaranteeing women are dressed modestly and covering their hair and that shops are closed during Muslim prayers, are respected (ibid.).

But 21st century Saudi Arabia is facing a time of great social and political change with the growing influence of globalization, a large and growing youth population espousing modern ideologies, and the impending succession of a new king, which in Saudi history has been a cause of great contention between rival factions of the royal family and has, in the past, resulted in the collapse of the formal Saudi state (House, 2012). The current ruler, the aging and ailing King Abdullah bin Abdul-Aziz Al-Saud, was responsible for many modern and moderate reforms since his rule began in 2005 and only time will tell if future leadership will continue this modernizing trend or revert back to more traditional values and policies (Long and Maisel, 2010). What the future has in store for the Kingdom of Saudi Arabia will be linked to the evolution of the youth population (in number, ideology, and influence) and how the state's political and religious leaders are able to manage them.

2.3 Saudi Arabia's Economy and Labor Market

The Kingdom of Saudi Arabia has experienced great economic growth since the latter half of the 20th century due to booming oil revenues financing large-scale domestic projects geared at modernizing and industrializing the nation (Madhi and Barrientos, 2003). Oil accounts for roughly 80 percent of the country's budget revenues and was in the excess of 920 billion US dollars in 2012 (CIA, 2013). However, much of the country's wealth remains concentrated in the hands of only a very few wealthy, and privileged, royals and tribes/families loyal to the ruling class (Roux, 2011).

The comparable wealth of Saudi Arabia has some economists referring to it as a *rentier state*, which means that the national government, by virtue of its abundance of profitable natural resources, supplies many services to ensure the comfort and prosperity of its citizens with little or no reliance on public taxation to burden the general populace (Beblawi, 1987). In the case of Saudi Arabia, diminutive tax revenues from public taxation overshadowed by governmental funds from even poorly distributed oil revenues resulted in the safeguarding of a generally high standard of living and a sense of governmental pampering that, by rentier state theory (RST), absolved the Saudi state from any responsibility for democratic citizen participation or accountability for state economic or developmental plans (Gray, 2011). However, as a result of rampant corruption much of the country's exorbitant wealth does not translate into the appropriate social services (such as quality healthcare, education, and infrastructure development) required of a rentier state, which leaves many Saudis shocked that despite exorbitant oil revenues many citizens still live in pre-developmental conditions with limited opportunities for upward social mobility or access to the local economy and labor market (House, 2012). These economic realities are harder to justify as inflation rates and domestic insistence on luxurious lifestyles is making it increasingly difficult for young Saudis to reach the wealth and comfort of previous generations while only relaying on single income earnings (Long and Maisel, 2010). The Saudi government is not unaware of the country's demographic shifts and increasing youth dependency and unemployment, in addition to limited job availability for qualified nationals, and has taken steps contrary to traditional RST logic by developing Saudization plans and agendas to address this growing crisis (Cordesman, 2003). Many young Saudis demanded access to the labor market and Saudization policies were designed to open positions vacated by terminated foreign nationals for the many Saudi youths now demanding employment to subsidize their expected standard of living (Roux, 2011).

Saudization programs were also implemented to curtail the country's dependence on foreign imported labor as the increasing numbers of skilled Saudi graduates was beginning to outnumber jobs available in the domestic market (Niblock, 2007). However, the cultural stigma of working low paid manual labor kept many young Saudi men (and to an extent, women) from willing to work in jobs other than prestigious managerial positions for which they were neither qualified nor educated (Long and Maisel, 2010). As the country developed, the focus of educational policy was placed on quantity, not quality, and unqualified and ideological instructors placed greater focus on Islamic education rather than career-related skills; this educational trend flooded the labor market with unskilled and expectant nationals unable to compete with skilled and

qualified expatriate workers (Cordesman, 2003). It was for this reason that Saudization programs incorporated an element of vocational training for Saudi nationals that possessed limited education and skills.

However, to date there is still a great deal of criticism and skepticism regarding the genuine success of Saudization policies. For this reason it is important to attempt changes, and if possible deeper reforms, to current Saudization educational practice in order to improve the agenda and impact of such programs. It was this educational component to Saudization policies, and the motivation to improve the output of such programs by making them more industrially relevant, that was the focus of this study.

Chapter Three
Literature Review
Key Concepts and EDR Studies

To better understand the groundwork that helped inform the theoretical and practical assumptions that guided this study it is essential to highlight the key concepts and related academic studies that influenced the development of the teaching artifact examined during the course of this study. The development of the proposed teaching intervention/artifact was supported by various educational viewpoints and strategies aimed at similar goals related to the acquisition of educational competencies not related to traditional teaching knowledge, objectives, and methods. Furthermore, in light of the use of educational design research, a method vital to this study and yet still a relatively novel methodological approach, it was helpful to refer to past applications of this methodology to showcases the merits and value of employing such a method for a study that had research objectives stretching beyond the basic goals of more traditional educational research.

3.1 Key Concepts

The key concepts underpinning this study were related to the various educational theories reinforcing assumptions about how to make *Saudization* programs more effective and efficient as regards their student output. Saudization programs are essentially a form of vocational education and training (VET) driven by a strong need for a sounder prominence on *vocationalism* to prove successful. To better understand how the proposed teaching intervention could serve Saudization VET in better preparing its student output for the domestic labor market, the concept of *soft skills* also required defining in addition to clarifying the relevant educational theories related to their formal instruction: *hidden curricula*, *mimetic learning*, *knowledge transfer* and the *role of the teacher*. All of these educational concepts stem from the overall theoretical approach of *social learning theory*, which served to ground the philosophical and psychological assumptions underpinning the development of the original teaching intervention and set the stage for the various educational theories that informed the development of the teaching artifact.

3.1.1 Vocationalism in Saudization VET

Saudization programs were established by the Saudi Arabian Ministry of Labor (MoL) in the early 1990s with two initiatives in mind: 1) to enforce policies limiting foreign national employment while putting in place increased quotas for the number of Saudi nationals companies needed to have in their employment; and 2) to educate and train Saudi nationals to successfully engage in occupations previously held by foreigners (Madhi and Barrientos, 2003). Although a great deal of criticism has been levied against the first policy of Saudization in light of its discriminatory agenda and the resulting

difficulties faced by industries attempting to reach Saudi hiring quotas while not suffering decreased productivity, the latter objective is viewed with more hope provided the educational and training programs prove to shape quality output (ibid.). This latter focus of Saudization highlights the vocational education and training (VET) aspects rooted within such nationalization programs. VET systems expand education toward 'vocationalism' and incorporate skills directly related to employment rather than traditional social and theoretical education (Grubb and Lazerson, 2006). For industry looking to maintain or improve productivity after a dramatic adjustment to the demographics of its labor force, it is important that VET programs are able to produce well trained, educated, and relevant output to a greater degree than would be expected from standard VET programs not tasked with such a specific agenda.

The success of Saudization VET is directly linked to the concept of vocationalism, without which the goal of such programs is of little value to the national economic agenda or the desires of local industry. How students of Saudization VET programs perform in the classroom can almost be considered a secondary concern when compared to how they eventually employ their VET experiences within the vocational setting. For this reason it is important to completely bridge the cleavage between the academic and practical environments. The proposed teaching intervention examined in this study is aimed at this objective by having the educational environment mimic the occupational environment.

The focus on creating and improving VET as a mode of countering massive youth unemployment, a low-skilled labor force, and employer demands for more relevant skillsets is not unique to Saudi Arabia. Employing VET programs for such goals was a strategy also employed by England in the 1980s and is increasingly a topic of discussion among educational researchers attempting to address the vocational/academic divide and the nature of skills education within VET systems (Hyland and Winch, 2007). The focus on 'skills' as an essential part of VET curricula and output has dominated educational writing, which identifies skills as the key focus for assessing VET success and relevance (Hart, 1978; Barrow, 1987; Griffiths, 1987; and Ainley, 1993). This importance on the practical use of skills, which are meant to be acquired via VET programs, is another key element of the proposed teaching intervention being examined in this study. The teaching artifact designed in this study called for the entrenchment of formal assessment of work-related soft skills within the curriculum rather than just having basic educational objectives within various classes being subjected to assessment alone. This means that students of Saudization VET programs will have to display soft skills knowledge and transfer it into the workplace rather than merely learn about them in the classroom in a theoretical manner. This pedagogical approach serves to close the gap between academic learning and occupational practice.

3.1.2 What are Soft Skills?

As economies and industries evolve, the skills taught within VET curricula must also be adjusted to meet changing market and employer demands (Hyland and Winch, 2007). Saudization administrators and practitioners have recognized the need for soft skills vocational education based on employer demands but have to date not successfully implemented changes or reforms to address how such skills should be successful taught

within Saudization VET (Jolo, 2012). A part of this problem rests with an inability to appropriately or exactly determine what soft skills are and which of these skills are essential for particular segments of industry within the Saudi economy.

The concept of *skills* is deceptively broad and complex. According to the Merriam-Webster online dictionary, a skill is defined as "a developed aptitude or ability" resulting from some type of learning process and can include, for example, an acquired language skill or the ability to cook well (Merriam-Webster, 2014). This definition, however, fails to acknowledge the complexity of how particular actions or attitudes are identified as genuine skills. A plethora of attitudes, behaviors, and activities can be regarded as skills within particular contexts while failing to be considered as skills in others. It is especially difficult to determine particular skillsets related to particular activities. Furthermore, within VET systems and programs, the concept of skills is continuously being reworked based on contemporary relevance and the inclusion of novel competencies stemming from progressive market demands and technological developments (Warhurst, Grugulis, and Keep, 2004). This struggle to determine what constitutes relevant knowledge, and what should therefore become an object of learning, is faced by all forms of educational undertakings (Phillips and Soltis, 2009).

The skills relevant to this study are referred to as 'soft skills' and include professional behavioral attributes such as work ethic, time management, teamwork, motivation, and critical problem solving (Kamin, 2013). But the number of skills included within the category of soft skills is vast and diverse. In this study a list of various occupational soft skills was included in the questionnaire and subjected to assessment by research participants in an attempt to determine what would be considered relevant soft skills within the context they represented. A number of selected soft skills were also identified within some of the characteristics of the teaching artifact examined in this study and also subjected to assessment. For a complete list of all the soft skill introduced to this study's research participants, refer to the questionnaire in Appendix 1.

Soft skills are related in many ways to emergent *21st century skills* and their affirmation that market demands no longer require technical skills alone but require employees able to think and act independently, process information efficiently, communicate effectively, and remain motivated in seeking innovative solutions related to industry problem-solving strategies (Griffin, McGaw, and Care, 2012). If Saudi industries are to become globally competitive and sustainable, they must adjust to these new skillsets fueling economic growth internationally. Such soft skills are increasingly necessitated by Saudi employers who demand them not because of foreseeing their relevance in the future, but rather because of referring back to past experiences with the display and importance of such skills from former expatriate laborers. Saudi employers have grown accustomed to soft skills as a part of the working culture of expatriates and the challenge is now bourn by Saudization programs to endow Saudi nationals with these skills in order to maintain employer expectations of local labor (Khan, 2008). For this reason it is essential to include an element of soft skills education within Saudization VET since Saudi national employment practice suggests they are lacking (ibid.).

3.1.3 Social Learning Theory

Soft skills education is complex due to the epistemological nature of the knowledge related to these skills and requires unique and more targeted teaching and learning strategies for effective knowledge transfer (Joia and Lemos, 2010). That is, the nature of soft skills education and practice is embedded in physical action and mental attitude rather than theoretical cognitive understanding. Educational strategies geared at changing attitudes and behaviors are not uncommon and are used, for example, to influence contemporary awareness of environmental responsibility and global citizenship and identity (Pavlova, 2009). Saudization programs, in the teaching of soft skills, must also focus on molding student behavior and attitudes to better ensure that soft skills learning is taking place within its VET programs. One possible teaching method implies an educational foundation based on behavioral reductionism and more psychological learning tools (Hyland and Winch, 2007). This comes as little surprise as the educational discipline has borrowed many fundamental perspectives on learning and development from psychology with many prominent psychologists serving as the canonical inspirations for educational philosophies and pedagogical strategies. The specific teaching philosophy that focuses on manners of learning and adjusting appropriate behaviors and attitudes is the psychological framework of *social learning theory*. It was this theoretical foundation that supported the revamping of the role of the teacher and the use of hidden curricula and mimetic learning as optimal modes of knowledge transfer in soft skills education espoused by the teaching artifact examined in this study.

Social learning theory was the brainchild of Stanford psychologist Albert Bandura. For Bandura, it seemed hopelessly cumbersome for learners to acquire concrete and appropriate knowledge and behaviors relying solely on their own cognitive senses to guide them (Philips and Soltis, 2009). Bandura asserted that behavioral learning took place in a social environment via observational cues referred to as modeling: by watching others a subject learned new behaviors and the appropriate social setting in which to display that behavior (ibid.). This reference to imitation as a key component to learning was not unique to Bandura alone and has long been espoused among psychologists and teachers alike (ibid.). The value of social learning theory for this study rests with its added credence to the need for soft skills education to break away from traditional views of knowledge as mere information. Soft skills knowledge needs to be perceived as the actual acquisition of desirable attitudes and behaviors. Teaching and learning of this sort needs to be taught in similar manners that other basic behaviors, such as learning how to use utensils when eating or hitting a baseball, are taught. This was the theoretical foundation that inspired the use of mimetic learning within the classroom, which is a key element to the proposed artifact.

For a representation of how Bandura visualizes a learner's interrelated connection between their environment and the modeled behaviors enacted within that environment, see Figure 2. One aspect to this complex relationship between a person, their environment, and observed behaviors, is that they are each constantly influencing one another, which suggests that adjusting one aspect of either the environment or the behaviors, or both, can result in the learning of different knowledge or behaviors.

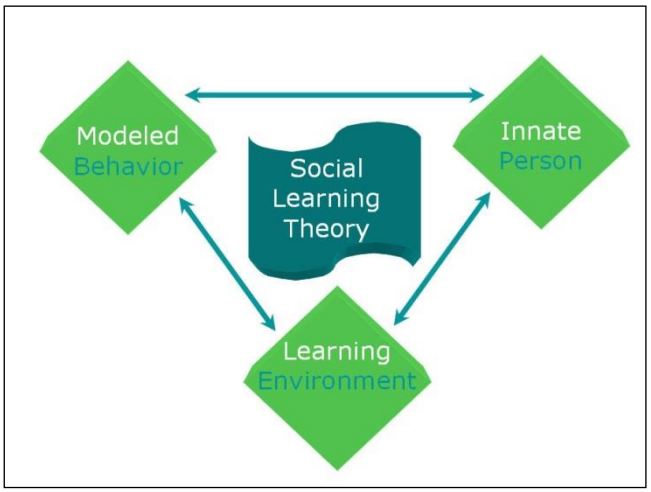

Figure 2: Albert Bandura's Social Learning Theory (Barrett, 2003)

Finally, social learning theory works with the assumption that behavior can be molded based on factors that are sometimes out of the conscious control of instructors. This contention is related to the remaining, more targeted, educational concepts that work with the philosophical foundations of Bandura's work and shed further light on how the proposed teaching intervention in this study is meant to improve soft skills education.

3.1.4 Hidden Curriculum

It was Philip Jackson (1968) that coined the term "hidden curriculum" in his work *Life in Classroom*. This concept is closely linked to the assumptions made by social learning theory. When examining the socializing impacts classroom cultures and ideologies have on behavioral and emotional learning, the concept of hidden curriculum has since become more visible and overt in educational research and especially practice (Hargreaves, 2012). It is becoming more apparent how classroom elements, unrelated to the formal school curriculum, are equally important in learning and can be manipulated to suit various learning agendas (ibid.). Better understanding about how to utilize this facet of social learning can contribute to a richer learning environment that can breed more socially valuable skills among student output.

Hidden curricula encompass all the tacitly present behaviors and attitudes that are reinforced in the classroom by teacher actions and societal ideologies (Barani, Azma, and Seyyedrazai, 2011). This includes, for example, ensuring students raise their hands when wishing to speak and sitting quietly in their desk during lessons. The task of hidden curriculum is to educate students on the socially accepted values, attitudes, and ideologies required to navigate society (Kentli, 2009). Hidden curriculum also molds student behaviors to conform them to role-defined expectations based on teacher-student relationships in the classroom (Hargreaves, 2012). By adjusting the classroom setting in Saudization programs to mimic occupational settings and relationships, it was anticipated that student behaviors and attitudes would be molded to match relevant skillsets within the workplace that reflect this new social setting in the classroom. However, because the hidden curricula targeted by the teaching intervention designed in

this study required that both pupils and instructors were consciously aware of the molding of appropriate behavior and attitudes (in the form of soft skills), it was essential to employ a complementary, and more overt, means of behavioral education. It was decided that adopting the use of mimetic learning strategies to accomplish this undertaking was appropriate and logical.

3.1.5 Mimetic Learning

Mimetic learning is quite simply defined as 'learning by imitation' and constitutes one of the most basic and vital forms of social learning (Wulf, 2008). Mimetic learning is considered to be a form of hidden curriculum insofar as behaviors and actions are sometimes enacted and later mimicked without the conscious attempt to have the behavioral acquisition take place—case in point, the belief that witnessed violence spawns aggressive behavior in children (ibid.). It is therefore important for soft skills learning to move away from keeping desirable attitudes and behaviors implicit and instead bringing them to both the conscious and explicit awareness of both students and teachers. This manner of behavioral awareness can hopefully ensure that only positive behaviors, such as targeted soft skills, are displayed and encouraged in a mimetic teaching strategy. The use of mimetic learning is also a manner to best assure that actual learning takes place regarding skills that are more difficult to teach using more traditional methods. Information about skills is not enough, but rather actual physical and psychological soft skill acquisition is required. Learning, within a mimetic learning approach, is best regarded as knowledge transfer in light of the need to ensure that students are able to display the skills they learned within a classroom setting in an appropriate fashion in the workplace. In fact, soft skills education is of little value if knowledge transfer does not take place. Mimetic learning, by ensuring that a subject does not simply reproduce desired behaviors but rather constructs a schema for how and when to apply the witnessed behavior is one manner that promotes knowledge transfer (ibid.). That is, in addition to creating physical habits and skills by practicing and enacting targeted behaviors, the temporal nature of such practices is overcome by the added cognitive addition of understanding the context and applicability of that action. Students will not merely robotically repeat new skills only within the classroom, but assess when and how to apply them effectively outside the classroom.

3.1.6 Knowledge Transfer

Knowledge transfer (KT) is an occupational term for 'learning' and depends on the assumption that more than teaching, but actual retention of knowledge, takes place (Kelly et al., 2008). The importance of this concept within occupational practice is that it demands knowledge is more than acquired but actually utilized in future occupational performance (Dickson, 2009). This is crucial for soft skills education in Saudization VET systems because soft skills are only truly valuable when apparent in the professional conduct of employees rather than their theoretical understanding of them.

A mode of KT that ensures information from a source is relayed to a recipient and ultimately utilized in later scenarios is referred to as *stickiness* (Szulanski, 1996). Stickiness is not just linked to the cognitive abilities of the learner and the pedagogical skills of the teacher; stickiness is best ensured when a healthy relationship exists

between the knowledge source and recipient (Peachey, Bartczak, and Hall, 2007; and Thompson, Jensen, and DeTienne, 2009). Therefore, it is important to ensure the instructor is not only well regarded in the classroom but that he or she is also capable of encouraging students to learn. The role of the teacher, with respect to students, is a critical aspect to the teaching intervention examined in this study. Teacher exemplars can better ensure that an appropriate hidden curriculum featuring mimetic learning strategies are established within the vocational classroom. This, in turn, allows for confident mimetic learning to take place.

It is also important that students are made aware of their behavioral expectations to ensure they attend to the proper skills they are meant to adopt. One manner of accomplishing this is to ensure that attention is focused on skills manifestation rather than just keeping such skills only within the general classroom culture. Making tacit knowledge more explicit is encouraged amongst students, teaching staff, and educational researchers as it facilitates better understanding regarding what makes teaching successful and what makes actual learning take place (Loughran, 2007). For this reason it was determined that encompassing hidden curricula under the auspices of a mimetic learning strategy would be effectively portrayed through the disciplined and exemplary role of the teacher who is charged with displaying, and encouraging the mimicking, of such skills. If true knowledge transfer of skills is meant to take place it is important to establish a proper social learning atmosphere guided by instructors who enact idealized behavioral and personality demonstrations of the skills placed on the learning agenda and identified as objects of learning.

3.1.7 Role of the Teacher

According to Newberry, Gallant, and Riley (2013), the role of the teacher is also described as a form of hidden curriculum that impacts the emotional and technical development of students. It is the responsibility of teachers to influence students in desirable ways to mold them into socially and economically productive members of society (ibid.). It is for this reason that the teaching intervention designed in this study focused on the teacher as the key exemplar for soft skills education via teacher conduct and control over the learning environment. The importance of the teacher's role was inspired by educational theories of 'coaching' that depended on mentors and experienced staff guiding and assisting underlings toward professional development (Reiss, 2009). Students that will be, in future research phases, subjected to the teaching intervention designed in this study are encouraged to mirror and adopt the soft skills demonstrated and rewarded in the classroom based on teacher guidance.

Further inspiration for this study's teaching intervention, and its focus on the role of the teacher, was motivated by vocational human resources development theory related to skills acquisition in the workplace (Grugulis, 2007). Soft skills acquisition takes place in the workplace through the occupational culture and relationships amongst staff members, which can be mimicked in an educational environment geared at vocational training (ibid.). As mentioned before, the role of the teacher is to model ideal professional conduct and to also reinforce or reprimand student behaviors based on employer expectations rather than basic school culture. This approach is similar to how skills and experience evolve in the workplace.

The role of the teacher in the proposed teaching intervention examined in this study blended a number of various teacher-based pedagogical approaches encompassed within hidden curricula that are influenced by the theoretical groundwork of social learning theory. Also, in light of the obvious need to bridge the cleavage between educational and occupational settings, skillsets, behaviors, and attitudes, it was important to allow input from training-based ideas situated in human resources development practice as well. The various components and strategies manifested in this teaching intervention/artifact were geared at trying to address the complexities of how to effectively teach soft skills by combining the learning aspects that take place in the classroom and in the workplace.

3.2 Educational Design Research Studies

The availability of research used in the identification of theories and concepts underpinning and informing the design of a teaching artifact is more readily available than research for guiding the methodological choices into how best to structure a study examining an artifact. However, in light of this study being driven by the practical, rather than theoretical, application of its findings, the value of utilizing educational design research methodology was supported by studies with goals similar to those pursued here (McKenney and Reeves, 2012). Furthermore, the use of educational design research presupposes a limited amount of academic knowledge or formalized practical solutions available with respect to the problem being examined (Brown, 1992). This is especially true for the case of Saudization VET practices and soft skills education. Research into Saudization programs yielded some mention of soft skills becoming essential to their success but little to no academic literature examining this need, the possible phenomena surrounding this issue, or strategies to address this problem. However, as regards the case of Saudization soft skills education, there were some design research studies that highlighted how EDR had been used in the past to shed light on possible outcomes and strategies that underpin the theoretical assumptions of this study, the merits of the proposed intervention/artifact, and the decision to use EDR methodology.

Bannan-Ritland (2008) developed a novel approach to teacher's professional development called *Teacher Design Research*, which was meant to "promote the growth of teachers as adaptive experts" by involving them in "long-terms cycles of design research" with the objective of having teachers help to develop new teaching strategies (Bannan-Ritland, 2008, p.246). The study found that more effective teaching reforms were developed as the result of incorporating teacher opinions in educational reform theory and intervention development, which also proved to bridge the gap between research and practice (ibid., 2008). According this this study, incorporating feedback from current Saudization practitioners, administrators, and former students into the intervention refinement process can create a more sound artifact and intervention theory for soft skills education. In this current study on Saudization VET it was important to pursue a more participatory research design not only to impact the success of the artifact but to also promote the professional development of participants.

In another study conducted by Cobb and Gravemeijer (2008) it was found that EDR proved most laudable for developing effective learning processes for mathematics education. Because the main objective of EDR in Cobb's and Gravemeijer's study was not to prove whether a particular intervention worked or not, but instead focused on employing an iterative process to refine the intervention, optimal learning results were achieved based on student feedback and assessment and the development of an accompanying intervention theory that attempted to explain the success of the artifact (Cobb and Gravemeijer, 2008). The positive impact of utilizing an iterative process to refine, over a series of implementation and evaluative phases, brought about a more successful teaching artifact that resulted in improved outcomes within the context it was applied. As the objective of the artifact designed in this study on Saudization is to actually improve soft skills knowledge and performance in Saudization VET graduates, it is important to allow for a continued process of refinement until optimal learning takes place. This iterative process is one of the hallmarks of EDR and a further way to bring research and practice closer together (McKenny and Reeves, 2012). Furthermore, this study reveals how EDR, and its focus on developing intervention theories rather than just interventions to be evaluated, is most relevant for practical problems that require prescriptive rather than merely descriptive research outcomes. As the goal of this current research was to actually positively impact Saudization soft skills education it was important to use EDR that aimed at a practical solution to the problem being examined, which may sometimes require more than one solution being proposed and examined within the course of a single problem solving activity.

McKenney and Reeves (2012) used EDR to design a solution to the problem of inert knowledge (students unable to relay textbook information into real-world problem solving) by designing an artifact called *anchored instruction* and developing an accompanying intervention theory for its application in other settings. This artifact was later easily adapted for implementation in similar contexts because EDR allowed for theories to develop about the various ways to employ and adjust the artifact based on context (McKenney and Reeves, 2012). The use of EDR has worked in past contexts to tackle and solve the problem of successful knowledge transfer, which is being addressed in this current study on Saudization VET. Also, the overall goal for the generalizability of the intervention designed by EDR is also the eventual goal (in future phases of research) of this current study on Saudization VET (Brown, 1992). It is expected that the soft skill education intervention developed here can be used to enrich the theories and practice of similar practical problems for soft skills education in other VET programs with the development of not just an artifact but an accompanying intervention theory.

As other EDR studies have shown, the use of educational design research is significant for the study of soft skills education for Saudization programs because it serves to create an actual practical solution to the problem, which currently does not exist for assessment using standard educational research methods. Furthermore, by allowing for expert feedback to assess the plausibility and value of the various characteristics of the intervention it is possible to design a successful and feasible solution and to generate a concurrent intervention theory allowing for future artifacts to be designed and refined in similar contexts.

Chapter Four
Research Methodology

In accordance with Creswell (2009) the selection of this research design was impacted by the nature of the research problem, this researcher's personal experiences, and the audience that is meant to benefit from the study. With these considerations in mind, educational design research (EDR) was selected as the most effective methodology for designing a soft skills educational intervention for actual (eventual) application within a Saudization program. Despite the focus on design methodology, the use of EDR is not mutually exclusive to the use of instruments and strategies found within standard educational research studies. For this study, a quantitative data collection strategy (i.e., self-completion questionnaire) was employed with a concurrent application of univariate quantitative data analysis used to interpret questionnaire responses based on statistical calculations of frequencies, data dispersions, and central tendencies (Bryman, 2012). Most of the data from this study was represented by basic frequency tables making this an EDR study utilizing quantitative approaches.[1] Because of the relative novelty surrounding the use of educational design research, it is important to explain what design research is and the various components found within this particular methodology.

4.1 What is Educational Design Research?

The research methodology used in this study is often referred to by various names: design-based research, design research, design experiments, design science, and development research (Anderson and Shattuck, 2012). Other notable educational design researchers also include the terms formative research/evaluation and engineering research (Van den Akker, Gravemeijer, McKenny, and Nieveen, 2006). These terms, the latter two especially, allude to the interventionist nature of this form of research and its focus on being oriented toward the utility and process of improving interventions and their applicability within naturalistic experimental environments rather than a black box model of input-output measurements emphasizing isolated and manipulated variables of experimental investigation (ibid.). *Educational design research* (EDR) is still another term specific to design research methods employed in educational research. Educational design research is defined as:

> the systematic study of designing, developing and evaluating educational interventions (such as programs, teaching-learning strategies and materials, products and system) as solutions for complex problems in educational practice, which also aims at advancing our knowledge about the characteristics of these interventions and the process of designing and developing them (Plomp, 2010, p.9).

[1] Refer to section 6.4, Limitations, to understand the original intention to conduct this study using a mixed-methods approach.

Although there are differing opinions about the exact components within a design research study, there is general consensus that a typical study involves four basic phases: 1) research and concept analysis of a possible intervention, 2) design and development of an intervention, 3) refining the intervention via an iterative process, and 4) a final evaluation of the intervention by implementing it within a contextually relevant setting (Plomp, 2010). For a more detailed outline of the various stages of a typical EDR study, please see Figure 3 below.

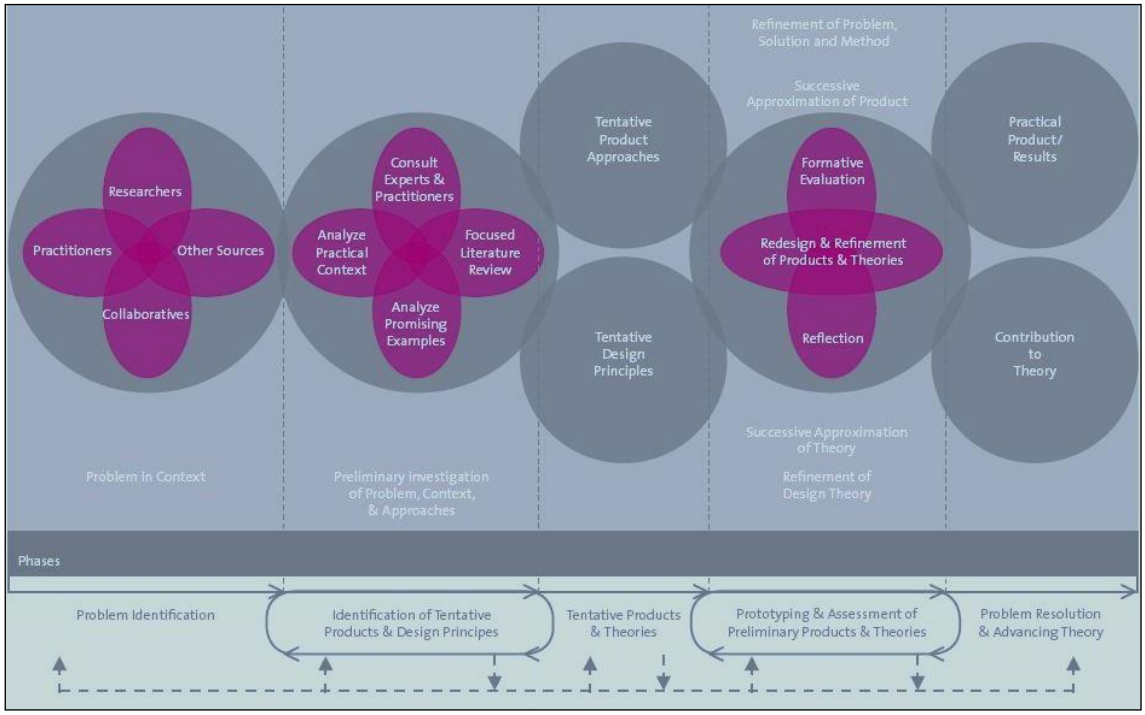

Figure 3: Generic Design Research Model (Wademan, 2005)

The main advantage to using EDR in this study is its cyclical, rather than linear, approach to understanding the link between theory, academia, and practice by involving experts and practitioners and having them participate in the refinement of the intervention within the context of the study (Collins, Beranek, and Newman, 1990). This iterative approach allows for the researcher and research participants to impact the refining of the proposed intervention for optimization and future generalizability, which serves to produce research that is more robust and with greater ecological validity in various teaching settings (McKenney and Reeves, 2012). As educational researchers are beginning to understand the complex co-constituted nature between learning, teaching, and the environment, design research strategies are required to better understand and develop theories on how learning occurs using the design of tools, theories, and curriculum (Barab and Squire, 2004). The use of EDR in this study was based on its direct link to curriculum development and how this methodology can be used to explore new pedagogical theories and the educational setting where teaching and learning takes place (Schwartz, Chang, and Martin, 2008).

Another compelling argument for the use of EDR methodology for conducting educational research (not just in this study, but in general) is the increased relevance of EDR outcomes for educational policy and practice, which allows research outcomes to produce knowledge, tools, and strategies that can directly impact the educational discipline (Van den Akker et al., 2006). Educational design researchers often criticize standard educational research for being too driven by the pursuit of *basic knowledge* (fundamental scientific understanding) to the disadvantage of *applied knowledge* (application of scientific knowledge to solve real-life problems) (McKenny and Reeves, 2012). Employing EDR methodology is done out of greater concern for the development of this latter form of knowledge and is what Lagemann (2002) referred to as *usable knowledge* for educational practice. The usable knowledge gained from this study was in the form of a teaching intervention/artifact and its accompanying intervention theory, which is meant to assist in creating better understanding about how to apply the artifact within its context.

What sets EDR apart from related social research strategies that are also driven by the pursuit of applied knowledge, such as action research or even participatory research, is the development of interventions and their related theories, which are used to assess artifact design for future studies (Johannesson and Perjons, 2012). This allows for the pursuit of peripheral, yet vital, aims and objectives within an EDR study that work to not only examine a phenomenon and outline a possible innovative solution, but to also determine a set of ideas surrounding the nature of that phenomenon as it evolves or manifests in various contexts. The two concrete elements produced from EDR are referred to as: 1) teaching interventions and/or teaching artifacts, and 2) intervention theories.

4.1.1 Teaching Intervention/Artifact

Incorporated into the EDR definition above, *interventions* are programs, teaching-learning strategies and materials, and products and systems "used in practice and are empirically underpinned solutions to the problems identified" in past research or practical experience (Plomp, 2010, p.22). An *artifact* (synonymous with intervention) is "an object made by humans with the intention to be used for addressing a particular problem" and can either be physical objects, visual diagrams or blueprints, and even methods or guidelines (Johannesson and Perjons, 2012, pp.3-4). Interventions according to Johannesson and Perjons (2012) can come in physical, constructed, form or be environmental elements. The intervention designed in this study has both a constructed element (the soft skills characteristics a teacher is meant to model) and an environmental element insofar as the classroom atmosphere is meant to mimic a workplace setting that the teacher constructs and enforces (ibid., 2012). Alternatively, the solution tested in this study can be conceptualized as both a teaching-learning strategy (soft skills curriculum changes) and a physical artifact (the exemplar teacher and the environment created by the teacher)—the latter being derived from the former.

4.1.2 Intervention Theory

An intervention theory can be known by various terms such as: design principles, domain specific theories, design theory, heuristics, or lessons learned (Plomp, 2010).

The keystone of an intervention theory is its ability to guide future studies in selecting and applying knowledge that is most appropriate for the design and development of a related intervention within a new context (Brown, 1992). Intervention theories provide EDR with predicative and prescriptive knowledge that can be used to move evidence-based educational research beyond simple descriptive analyses (McKenney and Reeves, 2012). This allows for a body of knowledge that can be used to base future interventions and further contribute to the impact of academia on practice. The development of an intervention theory for Saudization soft skills education in this study may be utilized to generate future research about soft skills educational changes either within similar employment nationalization programs or for other VET systems seeking novel KT approaches.

4.2 The EDR-Based Research Design of this Study

As discussed earlier, only the first three phases of a typical four-phase EDR experiment were undertaken in this study:

1) A concept analysis was conducted to further develop ideas related to soft skills education that were generated during this researcher's past experience as a Saudization practitioner.
2) Based on personal experience and a review of relevant literature, soft skills teaching intervention was developed and articulated.
3) The assessment and refinement of the intervention in order to generate a suitable and plausible solution to the problems faced within the context of the artifact's original generation.

The main focus of this study was phase three: the data collection of feedback from Saudization practitioners and former students regarding their assessment of the proposed intervention and its various characteristics. It was this phase that generated the data used to refine the intervention and to develop an accompanying intervention theory based on a more in-depth look into data trends.

As discussed earlier, the use of educational design research works in tandem with other more recognizable methodological practices found within a standard social science research design. In this study, the sampling strategy and the data collection tools were informed by basic quantitative methodology.

4.3 Sampling Strategy

Although the sampling strategies employed in standard, empirical, quantitative studies require selecting unbiased samples statistically representative of a population, the nature of this EDR study worked with an almost complete and entirely pre-selected group of participants based on the sampling frame of the context being examined. Because participants needed to conform to certain criteria based on the particular aims and objectives outlined in addressing the goals of this study, this meant that the number of

participants was quite small as the specifics of the selection process targeted a small group of persons familiar with the Saudization program that spawned this project. This was not considered a shortcoming to the study, however, as the main objective was to refine the artifact based on the opinions of those most qualified to understand the nature of the particular Saudization VET program framing this study. Based on the experience and knowledge of current practitioners and former student participants engaged in, or with, this particular program a more suitable and contextually relevant artifact could be developed. Because the results of this data are not meant to generalize opinions to a broader population outside of this particular Saudization program, the participants in this study are best viewed as an entire and complete population (Bryman, 2012). Simply put, the selection of the context of this study served to select the population of participants involved in the study.

The research participants were either former Saudization program students or persons involved in the administration or instruction of the Saudization program linked to the public sector institution hosting this particular VET program. This population was ideal for an EDR study that required 'expert' participants able to provide valuable and informed feedback to the researcher in order to refine characteristics of the teaching intervention for best applicability within the context of the study (McKenney and Reeves, 2012). These participants were deemed 'experts' based on their personal experience in taking part for a number of years in this Saudization program. Although all teaching and administrative staff working in this Saudization program were contacted to take part in the study, only former students that were currently working for this same institution were contacted for participation as they were still involved in the current program as graduated professionals. The Saudi Arabian Human Resources Development Fund (HRDF) was also contacted via email in order to identify participants involved with the particular Saudization program that inspired the artifact and from which the other participants were drawn. One individual was identified and was included in this study to seek responses from higher administration.

When the study began, sixteen (16) requests to take part in the study's questionnaire were emailed to the relevant persons (see Appendix 7 the email invitation). Of the total emails sent, all responses came back positive indicating agreement to complete the questionnaire; however, when the completion deadline for the survey arrived only twelve (12) questionnaires were fully completed. This adjustment to the population demographics based on population *non-response* may have indicated a possible *non-sampling error* in the resulting data (Bryman, 2012). However, this did not dramatically jeopardize the quality of the data because all the various groups within the population (former students and current practitioners and administrators) were still proportionately well represented and because a considerable majority of the respondents did complete the questionnaire. The original contact list included: eight (8) former students; two (2) instructors; five (5) administrators; and one (1) HRDF employee. The final list of respondents comprised of: five (5) former Saudization students; two (2) Saudization instructors; four (4) Saudization administrators; and one (1) HRDF employee. Each of these groups was considered a separate expertise level in order to compare participant opinions based on the type of practical experience the participant had with the Saudization program. These designated

expertise groups were not ranked in ordinal value and so did not indicate that any one group possessed more expertise than any other. These group designations were determined to make later data analysis based on opinions from various groups easier to associate to past experience in, and with, the Saudization program. See Appendix 6 for basic information about study participants (with only pseudonyms provided) including their designated expertise grouping.

4.4 Instruments for Data Collection

Based on the desire for comprehensive information to direct the refinement of the teaching intervention, the instrument used to collect data in this study was both qualitative and quantitative in nature. The detailed self-completion questionnaire hosted both closed questions in the form of psychometric (Likert-scale) questions in addition to opinion boxes where participants could choose to add comments and feedback (Bryman, 2012). However, the very limited use of the opinion boxes relegated this study to a strictly quantitative analysis.[2]

In light of the distance between the researcher and the participants and the limited time constraints of this study it was decided that distributing the questionnaire electronically would be most convenient. An electronic questionnaire allowed the participants to access the document more readily at various outlets than would have been available with a paper questionnaire. The questionnaire was securely hosted online at the eSurv.org website and was accessed via links in the form of either an internet address or a QR code sent to the participants in the original email requesting their participation. The completed questionnaires were stored on this site and could only be accessed from a password protected account. The website eSurv.org was used for a number of reasons that helped to safeguard the integrity of the data: participant progress on the questionnaire could be tracked; questionnaire access was limited based on IP addresses, which meant that only persons who received the invitation email were able to participate in the study; progress through the questionnaire required completion of all questions marked as requiring a response; participants could save their progress and return to the questionnaire at a later time but could not edit previous responses or repeat the questionnaire once completed; and notifications of completed questionnaires were sent directly to a designated address along with a link to the document.

The questionnaire was comprised of questions that were fashioned based on the key research questions being addressed in this study in addition to general personal questions to gain some demographic data about the participants. Personal questions aside, the first set of relevant questions were designed to gather data about how participants valued and prioritized various soft skills and the role of soft skills for improving Saudization success. Because of limited academic literature addressing this relationship it was important to determine the opinions of the participants regarding this matter. The remaining bulk of the questions then targeted participant opinions about the effectiveness of the various teaching strategies and approaches for soft skills education

[2] Refer to section 6.4, Limitations, to understand the original intention to conduct this study using a mixed-methods approach.

and how they compared to traditional methods. Then the participants were asked to provide their opinions about what artifact characteristics should be included in the final artifact. Finally, because of the peripheral objectives of this study, a last set of questions was included that asked the participants to reflect on how participating in the study impacted their own personal awareness of soft skills in the workplace.

In short, in light of the research objectives of this study the questionnaire included the following sections: 1) personal questions to gather basic information about the participants, 2) questions about soft skills in general and their importance and value for Saudization and the workplace, 3) how respondents evaluated the use of traditional and novel teaching methods, 4) psychometric-type questions related to the assessment of the soft skills teaching intervention's characteristics, 5) questions serving to identify which artifact characteristics were essential or irrelevant for the artifact, and 6) short-answer questions where participants could include personal comments about how to improve the artifact. The psychometric questions used a Likert-scale where participants were asked to either rate or indicate levels of agreement with respect to various questions about the artifact or its related elements. For an example of the questionnaire submitted to the participants of this study, see Appendix 1.

4.5 Method of Data Analysis

The analysis of EDR outcomes is meant to be analytical but also creative and is guided by both reductionist and systemic perspectives that respectively drive both the generation of a refined teaching intervention and the parallel intervention theory that establishes an evaluative approach to assessing the artifact's future applicability and evolution in novel contexts (McKenney and Reeves, 2012). To ensure making the most of the data collected and establishing the successful application of the EDR methodology in the pursuit of the research objectives it is important to evaluate the data in a meaningful manner that is both relevant and justifiable. For this reason, it was decided to employ a quantitative methods approach to data analysis with deeper and more meaningful conclusions with respect to the articulation of an intervention theory by interpreting identified patterns and numerical values in the data.

For example, the responses to the artifact's characteristics rankings (based on a Likert scale) were converted into *frequency tables* in order to quantitatively analyze which characteristics were generally considered relevant (i.e., effective) and which were not (Bryman, 2012). By quantifying the relevance and frequency each characteristic garnered it was easier to refine the intervention to meet both developer screening inputs and expert appraisals in the most efficient manner (McKenney and Reeves, 2012). The raw data collected from the questionnaires was entered into the statistical software program SPSS in order to identify such patterns and run statistical calculations. This data was later imported into Microsoft Excel in order to represent the data and patterns in visual charts and diagrams. Because the study's small sample size, it was impossible to establish statistical significance with certainty. Instead, the data analysis focused on determining response patterns for particular questions and to use those patterns to refine the artifact and draw conclusions about it for the development of an intervention theory.

Although many of the data conclusions came from charts and tables that indicated the direct amount of persons making specific selections, other charts and tables included ratings of effectiveness and participant opinions on various questions based on group affiliation and required a mode of *data transformation* to determine appropriately comparable numerical values (Bryman, 2012). One way to compare the results for the various categories and characteristics was to assign weighted values for each of the Likert-like scale levels so that an overall number, or rating, could be assigned to each element being investigated and compared. This form of data transformation was an appropriate mode for comparison since all of the data elements subjected to direct comparison had the same Likert-like scale data to convert and assess. This also allowed for the cross-examination of data across artifact categories that had differing numbers of characteristics or when comparing results from different expertise groups that had different numbers of participants contributing to the dataset. See below for an example of how the data transformation was accomplished for Question 7 (dealing with opinions about the effectiveness of traditional soft skills teaching methods) in the questionnaire.

$$\mathbf{Er} = \frac{\mathbf{E_t}}{\mathbf{E_h}} = \frac{(\mathbf{E_1 x\ N_{E1}}) + (\mathbf{E_2 x\ N_{E2}}) + (\mathbf{E_3 x\ N_{E3}}) + (\mathbf{E_4 x\ N_{E4}})}{(\mathbf{E_4\ x\ N_t})}$$

E_r = overall effectiveness rating
E_t = total effectiveness rating awarded from participants
E_h = highest possible effectiveness rating
N_{E1} = number of participants to select E_1
N_{E2} = number of participants to select E_2
N_{E3} = number of participants to select E_3
N_{E4} = number of participants to select E_4
N_t = total number of responses (i.e., total number of participants)
E_1 = "not effective" assigned a value of 0
E_2 = "mildly effective" assigned a value of 1
E_3 = "moderately effective" assigned a value of 2
E_4 = "very effective" assigned a value of 3

As can been seen with the example calculation above, effectiveness ratings and similar datasets were transformed to indicate possible scores from 0.00 to a highest possible rating of 1.00, which allowed for easier and more comprehensive comparison. The closer a value approached 1.00, the more laudable the variable under examination was perceived by the participants. In other words, if all of the participants indicated the highest possible value (in the example above "very effective") for a particular question then that variable or element under investigation would achieve a perfect rating of 1.00. Therefore, the closer a value approached this number the more positive the opinions of participants were with respect to it. The further the attributed value was from 1.00, the less positive the opinions of the participants were regarding that element under investigation. A similar mode of data transformation, with adjustments for specific

aspects of the individual question generating the data, was used for all instances of data transformation seeking comparative values from 0.00 to 1.00.

The large variation in the number of participants within each expertise group made data transformation necessary in order to compare the data results. This is especially true when examining the results provided by only two instructors versus five students. In cases such, the transformed data did allow for comparative assessment of respective results, however, it was kept in mind that quantifiable results in this case could belie possible trends based on small sample size. It is important to note that with the low number of participants selected to take part in this study, the data used in the quantitative evaluations were not assessed based on statistical significance.

The quantitative data collected and transformed during analysis was deeply and interpretively examined, which aided in the formation of an intervention theory outlining how and why the intervention would or would not work within the specified context (Van den Akker, 2010). Analyzing observable trends and patterns in the data and trying to elucidate the possible motivations behind such results made it possible to generate a *substantive* intervention theory that created a theoretical understanding about the conditions and contextual elements that would impact the performance of the artifact (Bryman, 2012). The intervention theory, related to the categories and concepts derived from formulated datasets and subjected to creative analysis, can be utilized in the future diffusion of the teaching intervention (Larson and Dearing, 2008).

Chapter Five
Research Findings and Artifact Refinement

This study was focused on maintaining design research principles, which meant that the main results of the data were aimed at gaining understanding on how best to refine the proposed soft skills artifact. This artifact was developed to reform soft skills education and to positively impact the knowledge transfer of such skills in vocational education and training in Saudization programs. The research participants' responses were helpful in gaining the perspectives of an essential group of former students and current practitioners able to contribute valuable assessment and standpoints on the five artifact categories and their various respective characteristics. After careful consideration and evaluation of participant responses, the artifact was refined slightly from its original design in order to improve its ecological validity and to increase its success in future experimental trials where the artifact will be applied and tested in the setting for which it was designed. It was the firm belief of this research that when designing the original soft skills artifact, based on prior experience working as a leading official for one particular Saudization program, that soft skills would be considered important as they are currently the implied missing link to Saudization success. Furthermore, it was also the belief of this researcher that soft skills education should focus on utilizing the role of the teacher as a model for positive work ethic to improve knowledge transfer via mimetic learning as opposed to traditional teaching methods. As projected, the artifact did achieve general support from the respondents with significant affirmation regarding the importance of teachers serving as positive exemplars for workplace soft skills modeling.

The following discussion surrounding key research findings was divided into main thematic sections. First, opinions about soft skills and soft skills education were outlined followed by a substantial discussion highlighting respondent opinions about the artifact and the effectiveness of its various categories and characteristics. This was followed by an overview of the artifact refinement process based on examining respondent opinions (with added cross-referencing with ascribed effectiveness ratings) regarding which characteristics to include or exclude from the artifact. Finally, a general discussion about the feasibility of the teaching intervention/artifact was defined in order to help establish the groundwork for an intervention theory, which was examined and developed in the following chapter.

5.1 Is a Soft Skills Teaching Intervention Needed?

Although some literature exists, in addition to a fair amount of discussion in Gulf media, regarding the indication that a weakness of soft skills development and use by the national labor force is a vital issue to address for improving sustainable local economic growth and development, it was important to reestablish this standpoint from the selected respondents in order to affirm the assumptions underpinning the case for

this new artifact. Gulf media aside, very little scholarly work exists regarding opinions about soft skills and employment nationalization programs in the Gulf, and Saudi Arabia, so it was imperative to have some basic data to substantiate the foundations reinforcing the artifact's purpose and need.

The respondents in this study, based on questionnaire responses examined in more detail below, confirmed the importance of soft skills and their link to the improvement of Saudization program success with respect to how such skills can positively impact employee success and productivity when competing in a labor market accustomed to expatriate labor that has displayed and utilized these skills during their tenure prior to replacement by Saudi nationals. In addition to establishing this basic need for soft skills education, it was also critical to determine what sorts of soft skills were considered important to persons imbedded within the Saudi nationalization scheme.

5.1.1 Opinions about Soft Skills Education in Saudization VET

The respondents were asked about the relationship between soft skills education and improved Saudization VET programs and the improvement of Saudi VET student output via soft skills education (Q3 and Q4, respectively)[3]. It was unanimously concluded that soft skills education would improve the quality of education and training in Saudization programs. It was also unanimously agreed that improved soft skills education could contribute to greater success for Saudization vocational education and training graduates entering the workplace.

In addition to verifying the importance of soft skills for Saudization VET it was also important to establish respondent opinions about the importance of soft skills in the workplace when compared to more technical hard skills (Q2). The rationale behind addressing this question lay with the need to establish and/or verify that workplace soft skills are important and that incorporating such skills into vocational training would mean graduates are better prepared for the workplace. This would in turn increase the occupational relevance of VET programs. It was concluded that the respondents did, indeed, verify the importance of soft skills when compared to hard skills in the workplace. Most of the respondents (8 out of 12) considered soft skills to be at least equally important to workplace hard skills. When examining the data results per expertise group it was found that both instructors chose this option, 4 out of 5 Saudization administrators and government employees selected this option in addition to 2 of the 5 students. Another 2 students indicated soft skills were more important than hard skills as did 1 of the remaining administrators. 1 remaining student respondent indicated that soft skills were less important than hard skills at the start of a new job but that they increased in importance later during employment tenure (see Figure 4 below).

[3] Q3 and Q4 indicate the numbers of the questions from the questionnaire being referred in the data explanation. Q3 indicates Question 3 and Q4 indicates Question 4. Any future reference to questions from the questionnaire will be written in this shortened format.

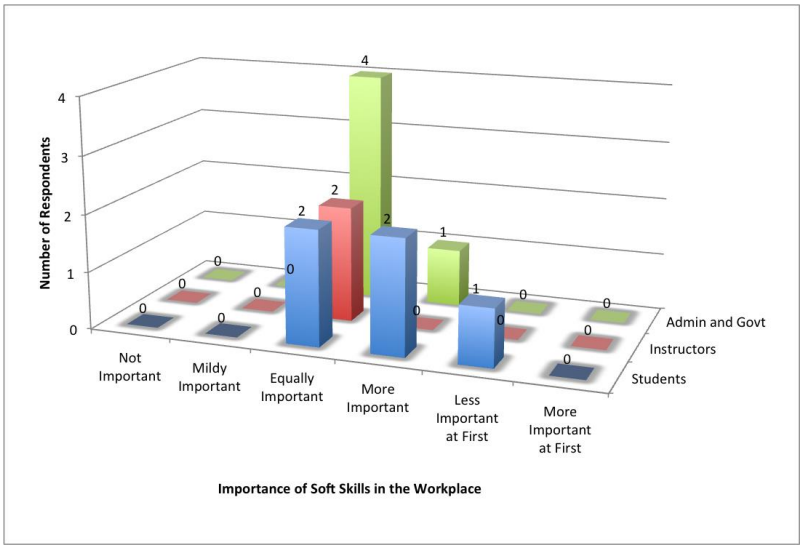

Figure 4: Respondent Opinions about Softs Skills Importance in the Workplace

According to the Saudization experts involved in this study, soft skills are clearly important for the workplace. This perspective on soft skills importance would indicate that these respondents would be more favorable to an educational artifact and teaching intervention geared at improving the education and knowledge transfer of such skills and may be more inclined to adopt teaching approaches favoring such education. Because soft skills are considered important for the workplace, they must be important for an educational endeavor geared at producing relevant output for such a market.

5.1.2 Opinions about Particular Workplace Soft Skills

When determining respondent opinions about specific soft skills, it was first important to identify a list of key soft skills to assess. A list of soft skills was compiled through an online search of various sources listing countless soft skills considered invaluable for employment success and productivity. The final list of 24 soft skills was decided based on common recurring competencies and themes during this search and the opinions of this researcher based on the skills deemed essential in the work setting in which the original artifact was designed. This list of soft skills was then introduced to the research participants in order to determine both their opinions about the importance of these skills and which of the 24 were, according to them, most important for the workplace.

Opinions about soft skills were collected via two questions with slightly different objectives. First, respondents were asked to evaluate the importance of each skill found in the complete list of 24 soft skills (Q5). Second, they were asked to select from the total list only 12 skills they thought were most important to display in the workplace (Q6). This meant that the respondents had to prioritize half of the skills in the list over the remaining half. Having the respondents indicate both their opinions about the work-related importance of each skill and then later having them select the most important ones enabled cross-referencing of their selections to identify patterns in preference. Also, importance ratings were assigned based on a data transformation process.

The highest possible rating for skill importance was 48, which was coded as 1.00.[4] It was determined that scores above 38.5 (above 80 percent of the highest possible rating), which was coded as 0.80, would be considered in good standing. Any score falling below 50 percent of the highest possible rating, which was 24 or 0.50, was interpreted as being unimportant for the workplace as indicated by the participants. It is important to note that none of the skills were rated low enough to be considered unimportant for the workplace as all the skills scored well above a 0.50 importance rating. The average rating achieved by all the skills was 0.79 and the lowest value granted to any one skill was a 0.69. These scores meant that the respondents considered all the skills on the original list important for the workplace. For a complete list of soft skills and participant responses regarding their importance, see Figure 5 below.

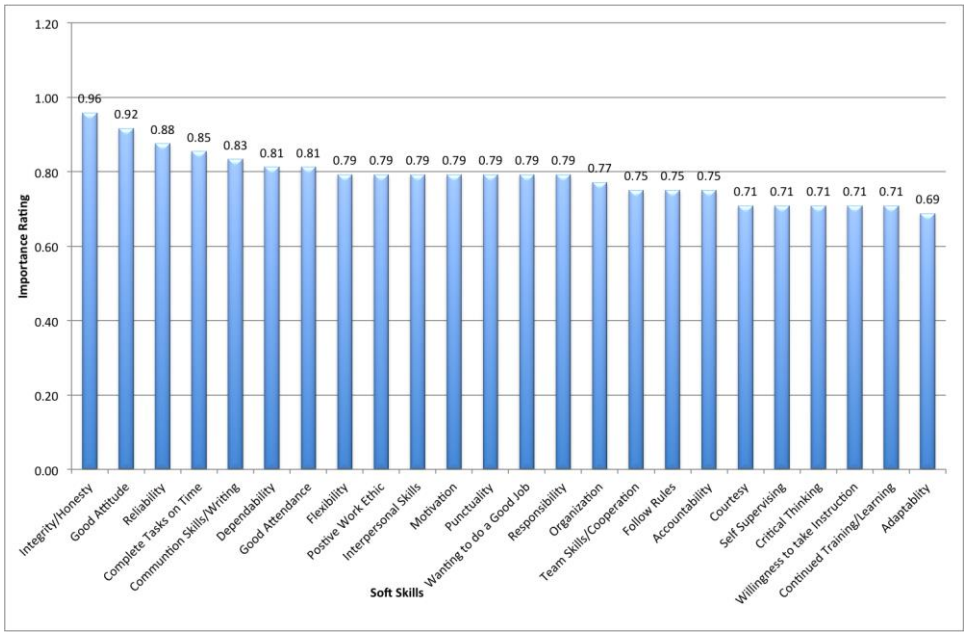

Figure 5: Importance Ratings for Soft Skills

The respondents did generate some identifiable and similar patterns when indicating the importance of a skill for the workplace and when selecting particular skills considered most important to display in the workplace. The most decidedly valuable skills were determined to be integrity and honesty, a general good attitude, and reliability. The most consistently disregarded skill was a willingness to take instruction followed most closely by courtesy. Some interesting disparities to note were that although the critical thinking skill was selected as a top skill majority of the time, it scored one of the lowest importance rankings with only 0.71. This similar trend was found with the positive work ethic skill, which was selected with even greater frequency and yet scored only 0.79 in importance. The reverse trend was found for the skill related to the timely completion of tasks, which ranked high in importance with a 0.85 and yet was selected with only minor frequency as a top skill.

[4] Refer back to section 4.5 for details on data transformation.

Understanding some general preferences displayed by the respondents with respect to which soft skills were most important contributed to a better understanding of how such preferences manifested in the interpretation and consideration of some of the characteristics of the artifact during the assessment and refinement process. This allowed for better interpretation of the data regarding the refinement of the artifact by allowing for possible data triangulation when needed. In other words, the preferences the participants displayed toward particular soft skills during this section of the questionnaire served to highlight possible motivations for later responses about elements of the teaching artifact that related to specific soft skills.

In conclusion, these fundamental questions, forming the groundwork for the importance of a soft skills teaching artifact, established the significance of soft skills for Saudization VET programs and supported the basic assumption underpinning the intended impact of the soft skills artifact. When drawing conclusions about the importance of soft skills education for Saudization VET success, it was obvious that the respondents agreed to the merits of such an approach. Having validated the need and value of soft skills and subsequent soft skills education for improving Saudization VET it was next essential to determine how the artifact would be perceived as working alongside more traditional teaching methods.

5.1.3 Opinions about Traditional vs. 'New' Teaching Methods

The nature of the artifact designed in this study is not meant to replace traditional teaching in the classroom, but rather to compliment it by offering a new facet or dimension to educational methods to further enrich the classroom setting and student educational activities. The concepts of hidden curriculum and mimetic learning are the domains by which the artifact contributes without interfering with the formal instruction of other subjects.

Because the need to create this complementary and parallel teaching facet, and its various student activities, steers away from more traditional teaching methods it was important to determine how such a strategy would compare to more familiar modes of instruction. Also, because these two teaching methods are meant to work in tandem, it was important to determine if a possible conflict regarding the use of novel teaching approaches was indicated by the respondents. The next set of questions in the study aimed at determining respondent opinions about soft skills educational methods that require, according to the theoretical foundations of this study, less traditional and more novel pedagogical methods to ensure a greater amount of learning and knowledge transfer. Because the intention of the artifact is to compensate and compliment more traditional teaching methods applied to teaching about soft skills and social skills for the workplace, it was valuable to understand how best to synthesize the two approaches for appropriate development of the artifact's characteristics and its later accompanying intervention theory.

The respondents were asked to evaluate how effective traditional and the new teaching methods (implicit within the artifact's categories) would be for soft skills education (Q7 and Q8, respectively). By calculating effectiveness ratings for each of the categories encompassed under either traditional or novel learning themes, it was

possible to compare how the respondents viewed the effectiveness that each category garnered toward soft skills education (see Figure 6 below).

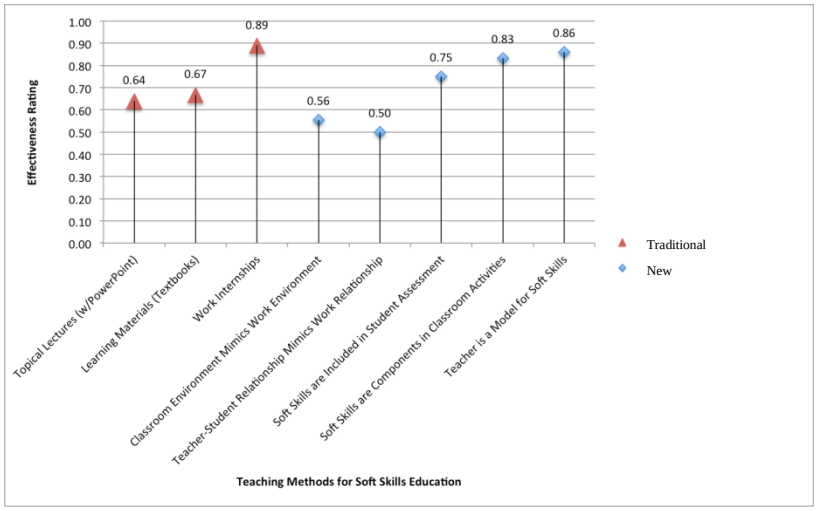

Figure 6: Respondent Opinions on Traditional and New Soft Skills Teaching Methods

The main components used in traditional soft skills education (within the Saudization program from which the respondents were recruited) focused on basic pedagogical strategies found in most classrooms. The three categories of traditional teaching methods conducted in this context were: 1) instructor lectures explaining textbook and supplementary information; 2) the use of textbooks as primary information sources for students; and, 3) work internships undertaken in the remaining few months of the program. The new teaching methods were essentially the five basic categories of the designed artifact: 1) a professional educational environment; 2) a professional teacher-student relationship; 3) the formal assessment of soft skills aptitude; 4) classroom activities incorporating soft skills aptitude in their execution; and, 5) the role of the instructor as an exemplar model for soft skills good practice in the workplace.

Based on respondent opinions, an optimal soft skills teaching intervention would maintain all the components of both the traditional and novel approaches with especial attention and focus paid to some key categories that they felt would be most effective for soft skills education. According to the respondents, the most effective categories for soft skills education were: work internships; employing the teacher as an exemplar for modeling soft skills good practice; classroom activities and assignments involving soft skills components in their execution; and, the formal assessment of student soft skills aptitude. Although traditional lectures and teaching materials were rated lower in terms of their effectiveness, they are still important to maintain within the pedagogical approaches used by the teacher because of the relatively high effectiveness rating both of these traditional methods received from the research participants. In fact, the average effectiveness rating of 0.73 (out of a possible 1.00) calculated for all three traditional teaching methods exceeded the average effectiveness rating for the five novel methods, which collectively scored a slightly lower value of 0.70.

The higher effectiveness rating awarded to traditional teaching methods can be attributed to the very high educational effectiveness perceived for work internships. Work internships remain a popular and prominent aspect to Saudization VET and in the opinions of the respondents invaluable for vocational training. Such an approach to traditional VET, seen in theories of vocationalism, is a strong component to soft skills education as many work-related skills are thought to be best acquired and understood in the work environment. However, in a somewhat counterintuitive fashion, the two novel teaching methods based on modeling both the classroom environment and the teacher-student relationship on the workplace did not score as high as would have been expected based on the value of immersion into a work environment to learn workplace skills. However, as examinations of later data verified, these categories do in fact maintain relatively strong support for some of the characteristics they embody and are therefore considered effective for soft skills education and important to include in the final artifact.

The originally lower rating granted to educational categories driven by theories of vocationalism may be the result of a lack of familiarity the respondents had with respect to what precise teaching methods these new categories actually encompassed. Traditional teaching methods, being more familiar to the respondents, may have contributed to better scores since the respondents could logically determine, based on past experience, what each category embodied with respect to teaching approaches. For the novel methods, it was yet unclear to the respondents at this early stage in the study (and questionnaire) what teaching tools and approaches would be involved in new teaching methods. This lack of familiarity may have resulted in these lower effectiveness ratings. This interpretation may also explain why later effectiveness ratings for the new methods were higher, when evaluated per characteristic within the categories, as opposed to the category as a whole.

To summarize, the research participants maintained confidence in the use of all of the categories (both traditional and novel) in the Saudization soft skills educational endeavor. Although traditional methods outshined the novel methods in a preliminary analysis, this did not determine a lack of importance for novel teaching methods. In general, in order to have effective softs skills education a synthesis of both the traditional and novel teaching categories deemed most effective would maintain the confidence of the respondents so long as the remaining categories were not excluded or neglected. It is the opinion of this researcher that placing greater emphasis on the most effective categories could be one manner in which soft skills education could improve.

Later in the study, after the questions related to artifact assessment and refinement, the research participants were asked again to consider the role of both traditional and new teaching methods. With more familiarity and reflection on the novel teaching methods of the artifact the respondents were better informed to assess the value of the artifact's novel approaches. When asked about the best strategy for soft skills education in Saudization VET (Q19), the respondents showed a noticeable preference for the use of both traditional and novel methods but with an expressed focus on the use of novel approaches. While 1 participant indicated that only novel methods should be used and another 1 participant favored the use of an equal combination of both traditional and

new methods, the majority (10) of the participants indicated that using a synthesis of both methods with added focus on novel approaches was best suited to Saudization VET soft skills education (See Figure 7 below).

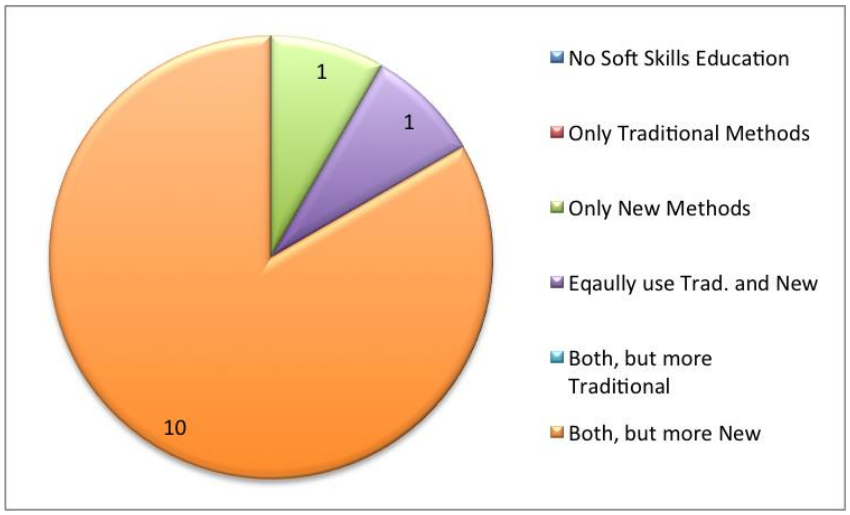

Figure 7: Respondent Opinions on Best Softs Skills Teaching Method

Reforms to the classroom and the teaching style of the instructor will not be drastically altered with respect to the continued use of traditional teaching methods. Rather the reforms will focus on how to incorporate the new aspects of soft skills teaching to work within another dimension of classroom instruction. Soft skills education via novel teaching methods does not interfere with traditional methods because they are incorporated, mainly, into the hidden curriculum of the classroom rather than in formal instruction. How such a teaching approach is to be undertaken, and how the teaching intervention will look, is now the subject of the refinement process. Prior to the actual refinement and the introduction of the newly revised artifact, a closer look at how the respondents assessed the effectiveness of each of the categories' characteristics will be presented.

5.2 Opinions about the Teaching Intervention/Artifact

The artifact being examined and refined in this study was developed (by this researcher) as the result of past experience with Saudization program changes to soft skills education that seemed to produce positive results for the learning and knowledge transfer of soft skills from the educational to the occupational setting. The originally designed artifact that derived from this practical experience comprised of five thematic categories and various characteristics specific to each category. All elements of the artifact were considered essential to soft skills vocational education and invaluable to the artifact's intended purpose of improving soft skills knowledge transfer based on the fundamental theories and philosophies underpinning the categories and their respective characteristics.

The artifact's categories were based on general themes that addressed major educational elements present in the teaching and learning of soft skills. These categories included:

Category 1: educational environment

Category 2: relationship between teachers and students

Category 3: assessment of soft skills aptitude

Category 4: inclusion of soft skills components into classroom assignments

Category 5: modeling of soft skills by instructors to encourage mimetic learning

These categories attempted to cover the many varied methods used to understand the learning process, which ran the gamut from cognitive approaches about how people acquire new information to theories regarding social impacts on learners as they navigate and make sense of the learning endeavor (Phillips and Soltis, 2009). Under each of the five categories were various characteristics that outlined specific actions, approaches, methods, and strategies for soft skills education that were inspired by this combination of theoretical approaches and the 'common-sense' gained from past experience with soft skills education in the Saudization context targeted by this study. For a detailed list of the artifact's categories and characteristics see Appendix 2.

Before examining the expressed effectiveness of the artifact as a whole, based on the various individual characteristics under each category, it was interesting to first triangulate respondent opinions regarding the effectiveness of categories on their own and the categories when based on the accumulated effectiveness ratings they received from their respective characteristics. This data was important because it helped determine how relevant the characteristics were in impacting later opinions about the artifact categories as a whole. As discussed earlier when examining respondent opinions regarding the effectiveness of traditional versus new teaching methods, it was suggested that a lack of familiarity with the specific characteristics encompassed within the novel categories may have resulted in lower effectiveness ratings as a result of unfamiliarity with the new teaching approaches.

The triangulated data indicated an overall similar trend with respect to opinions about the effectiveness of each category in relation to each other. That is, a similar pattern revealing which of the artifact's categories was deemed more effective when compared to the other artifact categories was comparable to the pattern detected when respondents only graded the effectiveness of the categories in previous questions. However, the effectiveness ratings for all the artifact's categories notably increased—with the exception of Category 4, which decreased slightly. This indicated more confidence in the effectiveness of the categories, based on the characteristics they encompassed, than was present when assessing the categories alone.

This trend may have been the result of respondents being unsure of what the artifact categories' true relevance was for soft skills education—the characteristics might have provided the extra information needed to better assess the new teaching approaches. This data trend is especially significant because it may indicate that the artifact categories, when compared in effectiveness to traditional teaching methods

(discussed earlier), may actually score higher in this comparison when broken down into their individual characteristics. In later studies it may be interesting to compare traditional teaching characteristics to new methods/artifact characteristics to see how they compare in order to develop an optimal synthesis of teaching methods in a final approach to the teaching of soft skills.

One key dataset used to influence the refinement of the artifact was the effectiveness ratings awarded to each of the characteristics. Characteristics that scored effectiveness rating well below the calculated standard range for perceived effectiveness would be subjected to possible removal from the artifact. Although more detailed analysis for each of the ratings will be examined per category, the entire list of effectiveness ratings for the whole artifact can be can be found in Appendix 3. For characteristic effectiveness ratings in relation to how they are statistically evaluated based on a mean of 0.77 and a variance range between 0.63 and 0.91, see Figure 4 below.

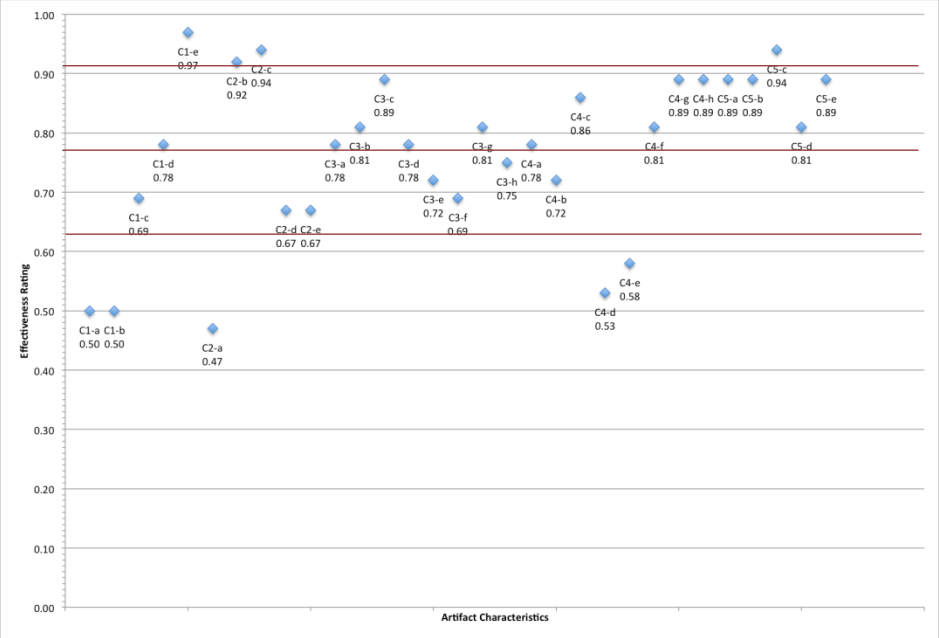

Figure 8: Artifact Characteristic Effectiveness Ratings and Variance

To efficiently refine the artifact it was not enough to only understand how the categories scored on effectiveness for soft skills education. Similar to how the artifact categories were given effectiveness ratings, each of the characteristics was assigned values based on the same scale. It was the calculated effectiveness of the individual characteristics that provided one factor in the decision on how to refine the artifact. The following sections discuss findings related to the various artifact characteristics' effectiveness ratings. Each of the sections provides an overview of the data when considering all the respondents together followed by a brief examination of identifiable patterns in responses based on respondent expertise groups—these patterns existed more prominently for some cases than others.

5.2.1 Category 1: Environment

The first artifact category deals with creating an educational atmosphere that reflects the ambiance and expectations found within a strict working environment. The rationale behind this category stems from the belief that vocational education is geared toward preparing students for the labor market and, perhaps more specifically, for a particular skillset within that market. For this reason, the more paralleled the educational atmosphere is with respect to the expectations and occurrences taking place in the workplace, the better the educational institution is capable of preparing students for the occupational setting. That is, the learning atmosphere should best reflect the expectations, routines, and social skillsets that will be required when the student enters the labor market. Decreasing the cleavage between the educational atmosphere and the working atmosphere will help students to regard themselves as professionals in training as opposed to students, which may indicate less responsibility and regard for the strict social requirements demanded of them in the 'grown-up' realm of the workplace. This category and its respective characteristics were influenced by theories of vocationalism and hidden curriculum.

Out of a highest possible value of 1.00, with respect to the artifact's effectiveness for soft skills education, this category scored a 0.56 in original assessment and a 0.69 for its accumulated characteristic effectiveness rating. Although these effectiveness ratings are closer to the higher end of the scale, they are still lower when compared to other categories. The effectiveness rating increased under individual characteristic assessment (Q9), which indicated that although the respondents may not have considered the teaching and learning environment important at first, its importance improved based on how effective its individual characteristics were considered to be.

The Environment category encompassed five characteristics meant to help mimic an environment found in the workplace as opposed to the one found in the classroom. These categories reflected the professionalism and accountability of the workplace and how the students' behavior is linked to the setting of the institution. It is important to recall the setting of this study when considering the characteristics of this category because although many of the elements incorporated in this category may be present in standard classrooms in many parts of the world, many schools in Saudi Arabia do not have strict environments with respect to some of the characteristics. This is especially true for student accountability on punctuality and attendance, which may reflect the lower assessment given to these two characteristics in the study. In Saudi culture, familial obligations and personal health reasons trump school responsibilities and are often excused or tolerated by teaching and administrative staff. This was the experience of this researcher in particular when first encountering the Saudization program related to this study. Not surprisingly then, the characteristics geared at the punishment of tardiness (C1-a) and poor attendance (C1-b) were rated as some of the lowest with respect to effectiveness. Each of these characteristics scored an effectiveness rating of only 0.50, which was one of the lowest values in the entire artifact. These results forced this researcher to consider if cultural experience was biasing opinions on effectiveness of these characteristics, or if perhaps little experience among respondents in understanding how such accountability can positively impact soft skills related to these

characteristics served to bias views on their effectiveness. This data anomaly would have been an ideal question for a follow-up interview with participants; however, the scope of this study (and logistical concerns) made this impractical.

Apart from these two characteristics scoring relatively low in effectiveness, another characteristic in this category proved quite well regarded. The characteristic related to the expectation of student professionalism (C1-e) scored an almost perfect effectiveness rating with respect to its bearing on soft skills education. This characteristic of professionalism scored a 0.97 out of a possible 1.00 indicating a very strong amount of support for encouraging a professional atmosphere in the classroom. Perhaps the need for punishment of unprofessional behaviors such as tardiness and a lack of punctuality is a moot point in light of this result. This, again, would require a follow-up interview to truly comprehend and should be included in future phases of refinement of the artifact in later trials of this study.

The remaining characteristics within this category faired quite well with respect to their perceived effectiveness for soft skills education. Obedience to rules and regulations (C1-c) and respecting the workplace (C1-d) were rated at 0.69 and 0.78, respectively. These two remaining characteristics are also linked to ensuring accountability and professionalism, which did receive a fair amount of support and seemed consistent with respondent indications. The key to Category 1 is not in restructuring the environment in the classroom drastically, but to ensure that proper behavior and conduct take place by encouraging a professional atmosphere under the guise of mimicking a future work environment. Based on respondent rankings on how each characteristic would affect soft skills education, maintaining an environment that encourages professionalism is essential to soft skills education. To further reflect upon this point, it would be interesting to see exactly what attributes, in the minds of the respondents, belong to the concept of professionalism in order to clarify the discrepancy between the aforementioned characteristics.

Findings by Expertise Group Distinction

Before concluding the discussion about the classroom environment, it is important to attempt to determine patterns in the responses provided by the various groups of participants to determine if these groups showed general agreement or discrepancies in options about the artifact's characteristics. When examining effectiveness values between different participants within various expertise groups, some deviations were found. Despite these few deviations, regardless of a respondent's type of experience with Saudization programs (whether as a student or as an administrator) there was a convergence regarding opinions about many of the characteristics of Category 1. However, some of the notable patterns were detected among the student group (see Figure 9 below).

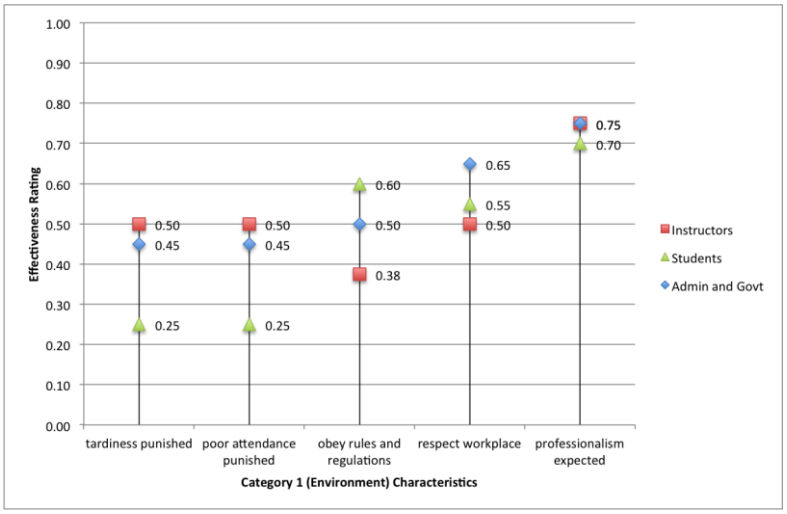

Figure 9: Effectiveness of Category 1 Characteristics by Expertise Group

The most obvious difference between the groups was found when comparing the former Saudization students and the remaining other groups with respect to two particular characteristics: C1-a and C1-b. These characteristics dealt with the punishment of tardiness and truancy, respectively, and were given lower effectiveness ratings by former students than either of the other two groups and caused a rather large numerical spread between the opposing effectiveness values. The students may have rated these characteristics lower because they may be more familiar with the prospect of being impacted by such classroom policies than the other expertise groups. This result may, therefore, not offer a reliable conclusion as regards the actual effectiveness of these characteristics in soft skills education. Instead, these results may reflect aversion to characteristics unpopular to students when enacted within a classroom. This finding can also be subjected to future study phases. Also, C1-c generated a noteworthy disagreement between instructors and students. The students rated this characteristic, dealing with obedience to rules and regulations, highly while instructors valued it much lower.

5.2.2 Category 2: Relationship

This second category of the artifact is focused on the relationship between the teacher and his or her students. Instead of classroom roles that reflect standard teacher and student identities and personas, the relationship fashioned here is one that shifts the role expectations for both parties to align with the workplace. The relationship essential to this category is one that mimics the roles expected within the workplace between an employer and his or her employees. As mentioned in the discussion about Category 1, and the environment in the classroom needing to mimic the workplace environment to better prepare and mold students for their future vocations, this category dealing with relationships in the classroom (particularly between the student and teacher) is also meant to contribute to the fashioning of the entire atmosphere in the VET culture to one that closely resembles professional and personal interactions in the workplace. By ensuring the relationship between the instructor and pupils is professional, and one that

prepares the students for the authority and professionalism required when dealing with superiors in the workplace, it is anticipated that students will be less shocked when leaving the classroom and entering the occupational setting. The motivation behind this category and its respective characteristics was focused on social learning theory and how to best utilized social contexts to mold student attitudes and behaviors to better acclimatize them to the realities and cultures of the workplace.

Similar to Category 1, Category 2 was also valued relatively low with respect to its perceived effectiveness for soft skills education. This lower rating refers to the one achieved under assessment comparing traditional and new teaching methods. According to this assessment, the category effectiveness rating for Category 2 was 0.50, which was the lowest value given to any category (both traditional and new). Category 2 achieved an effectiveness value lower than Category 1 when evaluated by category alone, and yet when comparing average effectiveness ratings calculated by assessing each category's individual characteristics, it was found that Category 2 fared much better with a score of 0.73, placing it well above Category 1 in this comparison. This indicates that the characteristics found within Category 2 were collectively determined to be more effective for soft skills education than those found in the other low-ranking category in the artifact (Q11). That is not to say that all characteristics within Category 2 achieved better effectiveness ratings than all of those in Category 1, which was not the case. In fact, characteristic C2-a was valued at a 0.47, which was even lower than the aforementioned lowest rated characteristics of Category 1. The characteristic C2-a deals with establishing teacher authority as ultimate and well respected, which is the way employees traditionally regard their employers. Of course, as was seen in Category 1 and the student and teacher attitudes toward authority and rules and regulations, it is not surprising that this characteristic scored lower than others in the category.

The highest rated characteristics in Category 2 were C2-b and C2-c, which scored a 0.92 and 0.94, respectively. The former characteristic deals with having the classroom instructor meet with students to discuss performance while the latter characteristic highlights the role of the teacher as a model for soft skills good practice. These two characteristics were awarded some of the highest effectiveness ratings in the artifact and were placed well above the average and standard range for effectiveness values. The remaining two characteristics, dealing with the role of the teacher in the reward or punishment of students based on performance (C2-d) and that merit and performance are foci for reward (C2-e), each were valued at an effectiveness rating of 0.67, which is still within an acceptable range although on the lower end of the spectrum.

Findings by Expertise Group Distinction

The opinions of the various groups for this category's characteristics were not significantly different from each other in a general sense. A similar pattern of response was detected for all the participants. One key difference was with respect to characteristic C2-a, which dealt with the teacher's authority being absolute and respected, and which was discussed earlier. Interestingly, the students rated the effectiveness of this characteristic relatively high within the category, with a value of 0.45, while the instructors rated it noticeably lower at 0.13. This resulted in the largest spread between effectiveness ratings within this category. Again, it would be interesting

to interview both students and instructors in follow-up refinement phases to determine why these results were found and to better adjust the artifact to account for any social phenomena fueling this response trend. There was also a higher numerical spread between the effectiveness ratings awarded by students and administrators with respect to C2-d and between students and instructors again for C2-e. See Figure 10 below for more details.

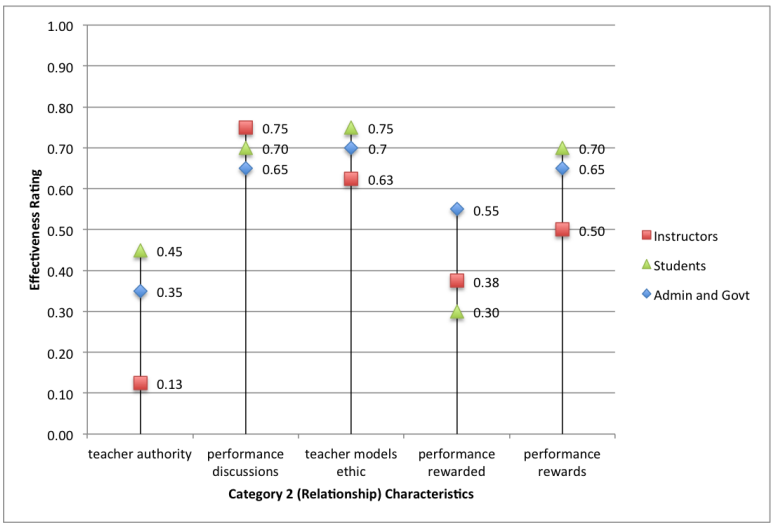

Figure 10: Effectiveness of Category 2 Characteristics by Expertise Group

5.2.3 Category 3: Assessment

The third artifact category deals with the assessment of soft skills aptitude alongside the traditional assessment of standard course-based learning objectives and vocational hard skills. This category requires the identification of characteristics that the teacher must isolate and work toward encouraging and rewarding. The objective behind Category 3 and its various characteristics is to highlight and bring to the conscious attention of both students and teachers the sorts of soft skills valuable for occupational success. Rather than students working diligently to score high grades on standard coursework and examinations, the students must also be aware of learning and displaying soft skills sought after by the instructor to ensure respectable classroom performance and assessment. Working with the assumption that students will be more assiduous at performing well on aspects of their education subjected to formal assessment and grading standards, making soft skills a classroom element for evaluation will encourage students to strive to perform and perfect targeted skills in order to achieve educational success in their VET program. This focus on soft skills as elements of learning performance that can be assessed is geared at producing tangible and representative performance indicators, such as grades or evaluation reports, which can be used to determine the extent of the soft skills a student has adopted and that the student can hopefully bring forward and showcase in the workplace. The theoretical underpinning for this category of the artifact was driven by the use of social learning theory to improve knowledge transfer of desirable attitudes and social conduct.

When examining the effectiveness ratings for all of the characteristics in Category 3 (Q13), there was a notable distinction between two types of characteristics. The first three characteristics of this artifact dealt with establishing a vehicle for assessing and documenting soft skills aptitude while the remaining five characteristics targeted specific soft skills subjected to the assessment vehicle. These three former characteristics dealt with instituting the provision of tangible assessment of students with respect to their soft skills performance. This tangible assessment vehicle was essentially the identification and creation of a program course within which soft skills could be formally assessed (C3-b) allowing for the formal grading of soft skills to take place in a recognized manner (C3-c). Students would also be provided with soft skills evaluation reports alongside their standard student records that display the assessment of their soft skills aptitude (C3-a).

Taken together, the average effectiveness rating for characteristics C3-a, C3-b, and C3-c was higher (0.83) than the average effectiveness ranking calculated for the remaining characteristics in this category (0.75). The highest effectiveness rating of (0.89) was given to C3-c, which aimed at ensuring an actual grade was assigned to students based on their soft skills aptitude. It was interesting to identify more general agreement and support manifested for the assessment vehicle than the characteristics related to what aspects within the vehicle would be subjected to assessment. This was perhaps logical because the various skills incorporated into the characteristics would be open to more personal and varied evaluation in light of the various personal beliefs regarding what softs skills are important for the workplace. How the vehicle for soft skills education compared in effectiveness to the individual soft skills subjected to assessment indicated that when designing a teaching artifact for soft skills education it would be easier to reach agreement on the mode of instruction rather than the exact soft skill objects of learning. Based on how the respondents ranked and selected soft skills in the earlier portion of the questionnaire, it was anticipated that consistencies and preferences could be identified, which could serve in better understanding how characteristics related to particular soft skills could be adjusted in future refinement phases. This was evident in opinions about the characteristic related to honesty and integrity (C3-g), which scored above the mean effectiveness rating with a rating of 0.81.

Category 3 was one of the categories for which the respondents indicated a greater level of confidence with respect to its effectiveness for soft skills education. Respondents granted it a rating of 0.75 during its comparison with traditional modes of soft skills education. When calculating its effectiveness rating based on how respondents rated the effectiveness of its individual characteristics the rating improved to a score of 0.78. This made Category 3: Assessment, the second best performing category in the artifact. Most of the characteristics in this category scored on the higher end of the spectrum indicating that many elements of this category were deemed quite effective for soft skills education. Also, this category saw none of its characteristics falling below the acceptable range for effectiveness ratings. However, characteristics C3-e, C3-f, and C3-h did rate lower than the mean effectiveness rating for the artifact; all three of these characteristics are related to specific soft skill objects of learning. As mentioned earlier, the characteristics referring to particular soft skills targeted for assessment tended to score lower effectiveness ratings than those related to general

modes of assessment. Of the soft skills identified as targets of assessment within the category, the least supported characteristic (at a score of 0.69) related to motivation and taking pride in doing a job well done (C3-f). The highest scoring skill-related characteristic was C3-g.

Findings by Expertise Group Distinction

When examining responses among the different expertise groups, Category 3 showed little disagreement concerning how the individual characteristics were rated on soft skills educational effectiveness. The most prominent trend was the decreased confidence with characteristics C3-e and C3-g on the part of the Saudization VET instructors. These characteristics both received an effectiveness rating of 0.38 from the instructors. These characteristics indicated the impact of critical thinking and honesty and integrity on soft skills assessment. The instructors gave both of these characteristics the lowest values for the category. In fact, although the instructors rated the soft skills assessment vehicle characteristics quite highly, all of the subsequent characteristics dealing with the specific skills to be incorporated into the vehicle were assessed quite low with the exception of C3-f which drew general consensus regarding its effectiveness among all expertise groups. Saudization instructors aside, based on how highly rated honesty and integrity was in the beginning of the study, C3-g scored well for the remaining two expertise groups. Also, there was a notable difference between the high effectiveness rating award to C3-c by students compared to the almost identically lower values awarded by the instructors and administrators. This characteristic dealt with formally grading skills. Refer to Figure 11 for a visualization of expertise group response trends for this category.

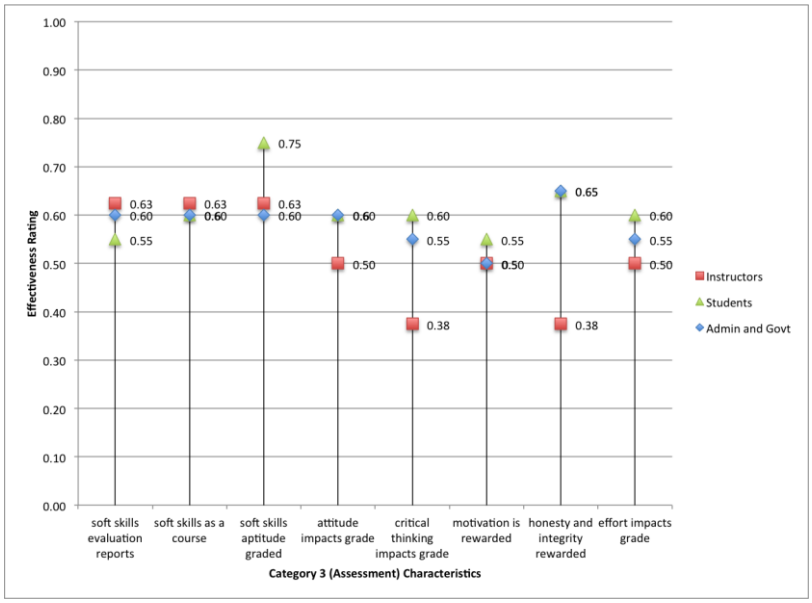

Figure 11: Effectiveness of Category 3 Characteristics by Expertise Group

5.2.4 Category 4: Components

The fourth artifact category specifically expanded and complimented Category 3 by focusing more on the explicit components that would be included in the assessment of soft skills. The characteristics of Category 4, although similar in nature to the last five characteristics of Category 3, are distinct because they provide more precise and measurable skills to assess whereas Category 3 focused more on general behavior and conduct overall rather than the educational soft skills components to be included in activities and/or projects in a Saudization classroom. Working with the same theoretical groundwork that motivated Category 3, this category aimed at bringing parallel educational components of hidden curriculum to the forefront of student and teacher awareness in order that they are cognizant of their importance for assessment in the classroom and eventually in the future workplace.

When initially compared to traditional methods of soft skills education Category 4 received a higher grade than achieved by its Category 3 counterpart. Category 4 was granted the second highest effectiveness rating, a score of 0.83, during the comparison of traditional and new teaching methods. This indicated that Category 4 rated above the 0.80 minimal effectiveness ranking and therefore received strong overall confidence for its effectiveness for soft skills education. When the category was evaluated according to its effectiveness rating based on a tabulated score among its various characteristics, however, its effectiveness rating fell to 0.76, which is slightly lower than its initial value and also slightly lower than the minimal confidence quota. This was the only category to drop in effectiveness rating during the later evaluation based on its characteristics. As mentioned in the discussion on Category 3, because of the larger amount of subjection to personal opinions about specific softs skills, some characteristics ranked lower causing the overall effectiveness ranking of the entire category to fall.

When examining Category 4 based on the performance of its individual characteristics (Q15), it is easy to distinguish those that received high effectiveness ratings from those that did not as there was a noticeable disparity between them. Characteristics C4-d and C4-e were ascribed some of the lowest effectiveness ratings found within the category. They were given effectiveness ratings of 0.53 and 0.58, respectively. C4-d dealt with the punishment of late assignments and C4-e targeted the ability to follow instructions. These two characteristics fell well below the standard range for effectiveness values. This was a significant variation from the 0.89 ratings received by C4-g and C4-h, the two best performing characteristics in the category. Characteristics C4-g and C4-h highlighted the improvement of a student's grade on a classroom assignment if they showcased targeted softs skills such as the use of suitable communication and writing skills (C4-g) and by showing an improvement in performance on assignments and projects over the duration of a study term (C4-h).

The second highest rated characteristic in Category 4 was C4-c, which achieved a value of 0.86 and was related to allowing soft skills needed to complete or execute classroom assignments becoming another tier of assessment of that assignment. Characteristic C4-a, C4-b, and C4-f achieved effectiveness ratings that were comfortably situated within the standard range of effectiveness but not outstanding in any way apart from C4-b (0.72) being slightly below the mean effectiveness rating for

the artifact. Characteristic C4-b was meant to work in tandem with C4-c by ensuring soft skills projects or assignments also had a content-based element subject to assessment but did not rate as well possibly due to the perception that soft skills are better addressed in content-based assignments. Characteristic C4-a (0.78) dealt with the formal adoption of soft skills into the curriculum and in light of the overall support for the entire artifact, this characteristic may have scored lower in light of this inherent manifestation in the nature of the general artifact. Finally, characteristic C4-f (0.81) dealt with the exceeding of basic expectations and was perhaps too vague to garner a stronger effectiveness rating.

Findings by Expertise Group Distinction

A noticeable pattern of varied effectiveness ratings was easily discerned from among the responses given by the different expertise groups concerning the effectiveness of each individual characteristic. While there was relatively general consensus about the ratings for the first five characteristics (C4-a, C4-b, C4-c, C4-d, and C4-e), the expertise groups had varied opinions about how they assessed effectiveness of the remaining three (C4-f, C4-g, and C4-h). Admittedly these remaining three characteristics were vaguer and therefore subject to both personal opinions and preferences more so than the other characteristics. Therefore, more variation was to be expected among respondent opinions regarding skills-related characteristics. What is interesting to note is that, again, the greatest divergence in opinions was between the former students and the instructors. Whereas the students rated the effectiveness of these last three characteristics high, with identical 0.75 scores, the instructors, by comparison, rated them between 0.38 and 0.50. This may be the result of varied experiences in the classroom on the part of instructors and students. See Figure 12 below for details about group-specific opinions about characteristic effectiveness.

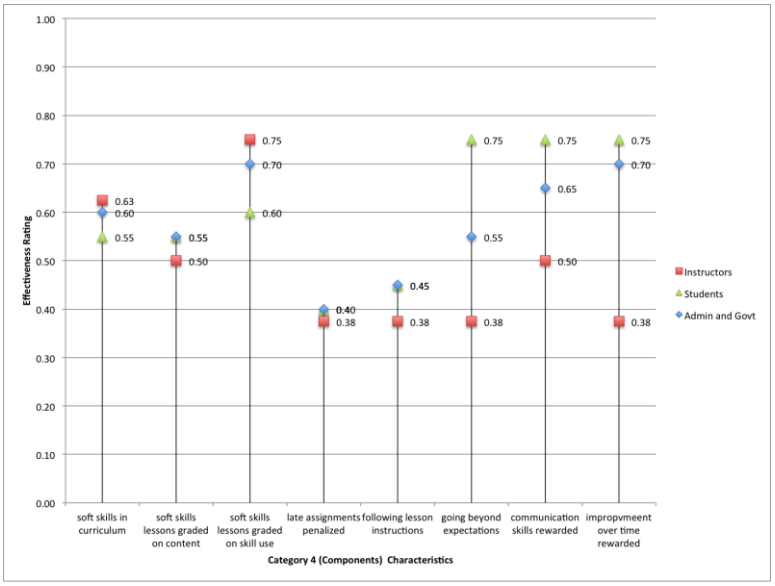

Figure 12: Effectiveness of Category 4 Characteristics by Expertise Group

5.2.5 Category 5: Modeling

The fifth category was one of the most important elements of the proposed artifact based on theoretical assumptions regarding the importance of the role of the teacher for education. This category, and its respective characteristics, related to the idea of having the instructor serve as a model for soft skills good practice. The other categories involved the role of the teacher within other educational components such as assessment and interactions with the students, however, this category was directly linked to the instructor's behavior and conduct with respect to being a model employee for his or her institution and therefore a model from which to see and adopt idealized workplace soft skills. This notion of a 'teacher as exemplar' was the motivation and keystone to this soft skills artifact and it was important to determine how the research participants responded to its effectiveness as a tool for soft skills education and knowledge transfer. The philosophical and theoretical foundation for establishing this particular role and importance of the instructor was influenced by social learning theory and its implicit hidden curricula of mimetic learning and the role of the teacher. Both of these hidden curricula were also implicit within vocational theories of coaching, in which the role of the teacher is not only to display information but to also model appropriate behaviors and attitudes.

When asked to assess traditional and new soft skills educational methods, Category 5 ranked the highest (0.86) among the new teaching methods. When compared with both traditional and new teaching methods, this category ranked second just below the highest score of 0.89. This placed the concept of modeling just below the traditional use of work internships, which made the category of Modeling one of the most overall effective soft skills educational methods from the opinions of the research participants. When calculating the effectiveness rating for the category based on the scores achieved by its individual characteristics, Category 5 improved its score to a 0.88. This made Category 5 score well above the baseline confidence quota of 0.80 and indicated a relatively substantial amount of support for the effectiveness of using a teacher as a model for soft skills good practice in vocational training programs.

When rating was conducted based on the individual characteristics of the artifact (Q17), the individual characteristics of Category 5 all scored above a 0.80 rating as well. The highest scoring characteristics was C5-c (with a value of 0.94), which was about having the teacher work toward being a positive and consistent role model for soft skills in the workplace. The lowest value awarded was a 0.81 for characteristic C5-d, which was instituted on the concept of encouraging students to examine the teacher's behavior in order to identify various soft skills being displayed. The remaining three characteristics (C5-a, C5-b, and C5-e) all scored a 0.89 effectiveness rating and dealt with the teacher being active in explaining his or her use and display of soft skills so that students were able to better recognize and adopt them (C5-a) and explaining how a particular soft skill being modeled relates to the workplace (C5-b). The last characteristic in the category (C5-e) dealt with the instructor speaking with students one-on-one to congratulate and encourage soft skills mimicry. Characteristic C5-d, although important and an essential element to ensuring the success of C5-c, was graded lower perhaps because it was the most student-centered learning characteristic, which

implied less direction from the instructor and instead placing greater responsibility on the students. This approach to soft skills learning may have been perceived as problematic for the learning of soft skills when there may be little familiarity or comfort with discovering them based on limited past expertise in traditional Saudi educational environments.

Findings by Expertise Group Distinction

When looking closely at how each of the different expertise groups rated the effectiveness of the individual characteristics in Category 5, there was one very distinct anomaly that became evident. The lowest scoring characteristic, C5-d, was rated lower by the instructors when compared to the effectiveness rating awarded by students, administrators, and the one government official. Both of these latter groups rated this characteristic much higher. The instructors gave this characteristic a very low effectiveness rating of 0.33 while the students and administrators awarded it a 0.93 and a 0.80, respectively. With the exception of C2-a, this was the lowest rated characteristic in the entire artifact according to instructor responses, and responsible for the largest spread in effectiveness rating data in the study. See Figure 10, below, for a detailed chart on expertise response trends for this category.

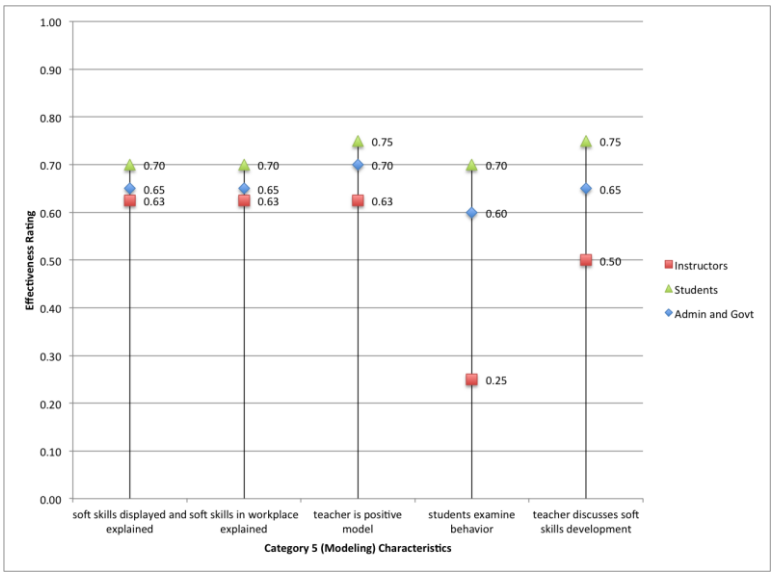

Figure 13: Effectiveness of Category 5 Characteristics by Expertise Group

5.2.6 Summary of Artifact Assessment

Before proceeding to an examination of how the effectiveness ratings awarded to the artifact and its various characteristics compared with subsequent respondent decisions to either include or exclude components of the artifact, it is important to provide a brief summary of the main trends apparent from the data thus far.

Opinions about Soft Skill Importance and Soft Skills Education

Although there was unanimous support for the need to incorporate soft skills education into Saudization VET, there was varied opinion about what sorts of soft skills were important for the workplace and therefore important to incorporate into the artifact as suitable objects of learning. Honesty and integrity and a good attitude were the strongest performing soft skills, which later did reflect positive assessment of characteristics that alluded to such skills. However, there were some inconsistencies with opinions about important soft skills. For example, the timely completion of tasks was rated as important and yet not often selected as a top skill. Critical thinking reflected a low importance rating and yet was selected in many cases. Both of these discrepancies were reflected in later characteristic effectiveness evaluations as characteristics that related to these skills tended to garner lower ratings. The overall opinion about all of the soft skills was that they were all considered important. Finally, the importance of soft skills for better Saudization VET success was considered of equal importance to hard skills with some further support indicating their more essential nature.

Summary of Opinions About Artifact Effectiveness

The effectiveness of the various categories and their respective characteristics yielded a large amount of data for analysis. Without rehashing finer details of the research findings discussed earlier, it is nevertheless important to summarize some overall trends that help to better understand the artifact refinement process and the derived intervention theory.

With respect to artifact categories, respondents rated the first two categories dealing with the classroom environment and teacher-student relations mimicking a workplace atmosphere and culture relatively lower than the remaining three categories dealing the assessment of soft skills and the inclusion of soft skills components into classroom practice in addition to role of the teacher as an exemplar for soft skills education. This last category was rated the highest with respect to its effectiveness for soft skills education. The individual characteristics in each category were also rated.

Following a statistical calculation of the mean and standard deviation for the effectiveness ratings awarded to all of the characteristics it was easy to identify which characteristics were rated well above or below the normal range of effectiveness values. The highest rated characteristics were C1-e, C2-b, C2-c, and C5-c. The lowest rated characteristics were C1-a, C1-b, C2-a, C4-d, and C4-e. The remaining characteristics received effectiveness ratings that did not substantially deviate from the normal data range.

The characteristics were also analyzed based on how the various expertise groups rated the effectiveness of the characteristics. Although there was general agreement in the patterns of responses and assigned ratings, there was a noted lower range of data awarded by the instructors when compared to the other expertise groups. This was especially evident when compared with ratings awarded by former students, as these two groups usually displayed the largest spread between their effectiveness ratings.

5.3 Link Between Characteristic Effectiveness and Inclusion

After assessing the effectiveness of each of the various characteristics, the respondents were then asked to determine which characteristics should be included or excluded from the artifact as part of its refinement process for the next stage of its evolution toward greater ecological validly within the particular context the respondents represented. A general pattern emerged that indicated a convergence between the frequency at which characteristics were identified as effective for soft skills education and the decision to include them in the artifact. Similarly, the same general pattern could be found demonstrating a link between the indication of a characteristic's ineffective nature for soft skills education and its requested removal from the artifact. Figures 14 and 15 showcase examples of this pattern but with some marked deviations from this pattern. When tallying the number of respondent selections for effectiveness, the number of selections for *moderately* or *very effective* during effectiveness ratings were added together. Similarly, the not effective numbers combined the *not effective* or *mildly effective* number of indications during effectiveness assessment.

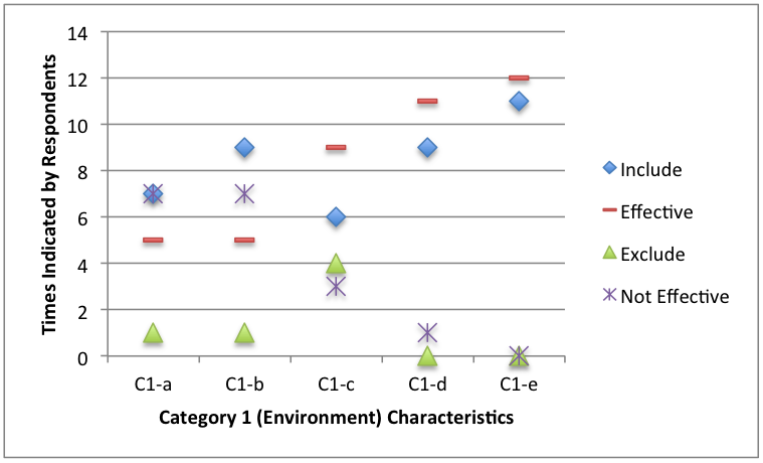

Figure 14: Category 1 Effectiveness and Refinement Ratings Relationship

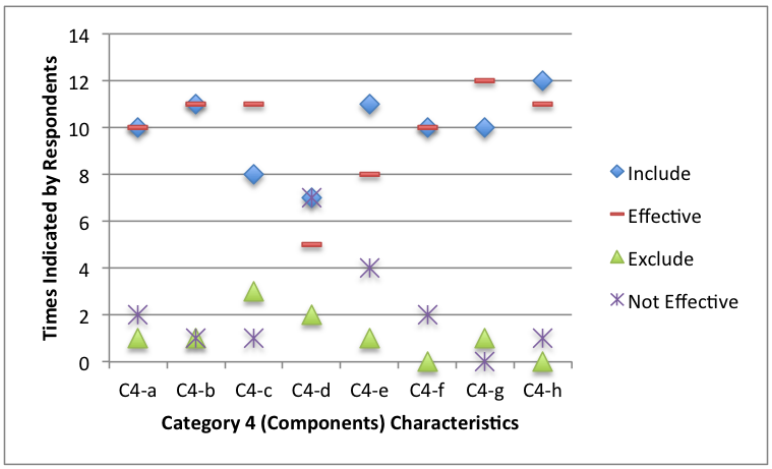

Figure 15: Category 4 Effectiveness and Refinement Ratings Relationship

Although there was an identifiable link between opinions on effectiveness and inclusion or exclusion of characteristics, there were a few apparent anomalies within the data that generated speculation about respondent motivations. Characteristics C1-a, C1-b, and C4-d deviated the most from the convergence pattern explained above. While all three characteristics were given low effectiveness ratings by respondents, they were at the same time given high rates of inclusion for the final artifact instead of the expected decision to exclude them. Interestingly, all three of these characteristics were explicitly related to the punishment of student behavior or conduct and are the only three characteristics that possibly projected negative undertones to the research participants. C1-a and C1-b referred to disciplinary action for tardiness and truancy, respectively, and C4-d referred to the penalization of assignments submitted late. Although a chance to speak with respondents to clarify this discrepancy was not available, it can be postulated that these characteristics scored lower in effectiveness simply because of a general undesirable attitude some people may feel toward negative concepts. That is, personal dislike of punishment may have biased opinions on the genuine effectiveness of these characteristics. Additionally, the decision to still include these characteristics in the artifact may have implied an acknowledgement on the part of the respondents that such negative realities exist within the classroom culture and therefore belong within the artifact. This is also a possible bias because although students and other respondents rated concepts like professionalism highly, they apparently do not make the connection between the behaviors and accountability implied within C1-a, C1-b, and C4-d and how they are linked to soft skills related to professionalism.

5.4 Artifact Refinement

When determining the refinement of the artifact and how to utilize the data when coming to justifiable conclusions about what elements of the artifact to include and exclude, it was important to ensure the respondents were asked this question directly to avoid speculation and possible validity issues in data interpretation. Rather than relying on questions formulated to target opinions about another factor such as effectiveness, which might not always be directly related to opinions about what characteristics to exclude or maintain, another series of questions in the questionnaire (Q10, Q12, Q14, Q16, and Q18) were dedicated to allowing the participants to express their opinions about what characteristics should be used to produce the final artifact.

The decision to allow participants to include or exclude characteristics was not extended to the inclusion or exclusion of entire artifact categories. As stated earlier, there was very little general indication that categorical aspects of the artifact were deemed largely ineffective and for this reason the categories would remain in the artifact to structure the refinement process to better resemble the original five-category artifact. All five of the original artifact categories were important to be included in the refined artifact based on the experience and theoretical groundwork supporting the fundamental philosophy underpinning each category's value and necessity. The only manner by which an entire category could be excluded from the artifact would be if the respondents had excluded all of the characteristics situated within a particular category. As none of the categories suffered excessive losses with respect to the number of

characteristics removed, it was not deemed essential to remove categories as a whole, but rather to adjust the characteristics found within each one. To see a list of maintenance or removal scores for both categories and characteristics see Appendix 4.

The key factors impacting inclusion or removal of an artifact characteristic were either the *basic maintenance score* or the *adjusted maintenance score*. The basic score was derived by dividing the number of times respondents indicated to include the characteristic by the number of the total population of this study. The adjusted score was calculated in a similar manner however the total population was replaced by a number that subtracted respondents that indicated indecision on whether to remove or keep a characteristic from the total population.

When determining how to exclude particular characteristics from the artifact, it was decided that in order to ensure the greatest possible ecological validity, any characteristic that did not garner a respectable majority of the respondents' support would be removed. The determined maintenance score was established as requiring at least 80 percent of the respondents indicating the decision to include it as part of the refined artifact in order to confidently keep it within the future artifact. However, relying on just a basic maintenance score to determine which characteristics to remove or include proved more complicated and required more scrutiny. Figure 16, below, reveals the basic maintenance patterns for the artifact based purely on respondent opinions to either remove or include the artifact. The basic maintenance scores revealed a large number of characteristics that did not reach an 80 percent inclusion score and required further investigation before characteristics could be excluded. The basic maintenance score was only one, limited, mode of analysis for artifact refinement, which will be explain in greater detail below. This simplistic mode of refinement failed to address the intricacies of respondent opinions regarding other factors that impacted the importance of refining the artifact for best possible ecological validity (i.e., undecided responses). For this reason it became important to evaluate multiple numerical factors for a more holistic refinement approach. Also, in idealized design research refinement there is a desire for unanimous consent regarding removal or maintenance of characteristics, which usually takes place during the final refinement phase. As this was not possible during this study, which only performed one refinement to produce results, the first refinement phase in this study had to have a more robust method to produce tangible results.

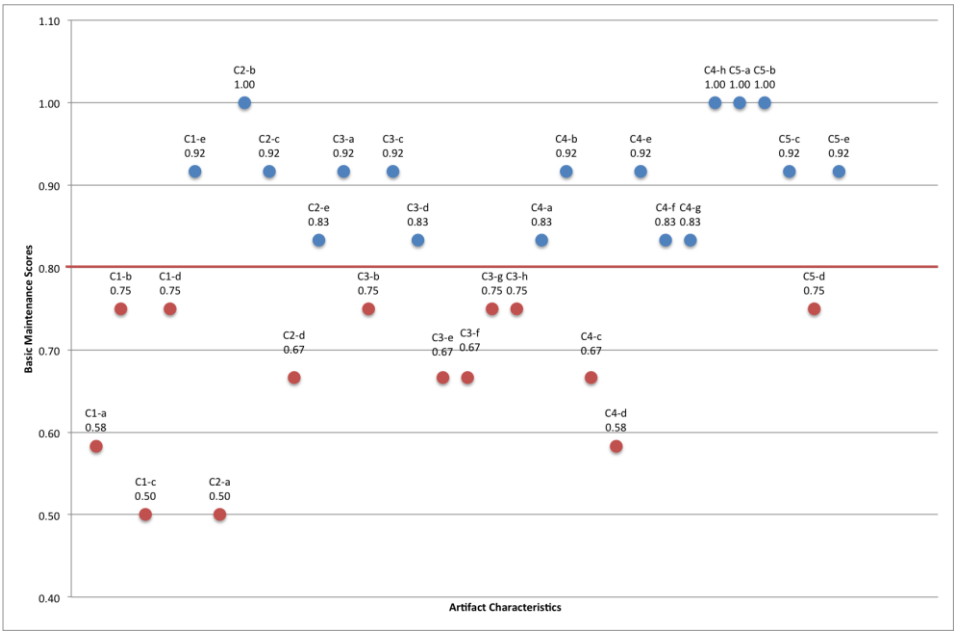

Figure 16: Artifact Refinement as per Basic Maintenance Scores

As mentioned earlier, a complicating factor to calculating maintenance scores was the result of providing respondents the option to remain undecided with respect to the inclusion or exclusion of an artifact characteristic. This meant that two maintenance scores were calculated to be able to consider both perspectives on the data. Because it cannot be conclusively determined whether an undecided response would later become a decision to include or exclude a particular characteristic, it was decided to include this variable of indecision in the refinement analysis in a fashion that would highlight characteristics, subjected to significant undecided responses, to future questioning in later refinement phases in forthcoming studies. By including the undecided responses it resulted in more characteristics that were neither included nor excluded but that required more data to truly understand and assess. As this artifact can undergo many refinement periods this was the more practical way to proceed rather than immediately excluding characteristics based on their failure to be selected for immediate maintenance within the artifact. With the added layer of utilizing adjusted maintenance scores, which subtracted undecided responses from the calculation of maintenance scores and often resulted in higher maintenance scores, another dataset was available to more closely scrutinize and assess artifact refinement beyond what was available from the basic scores (see Figure 17 below). However, this dataset served to only compliment and add a cross-referencing tool when analyzing the primary dataset used for analysis, the basic maintenance scores.

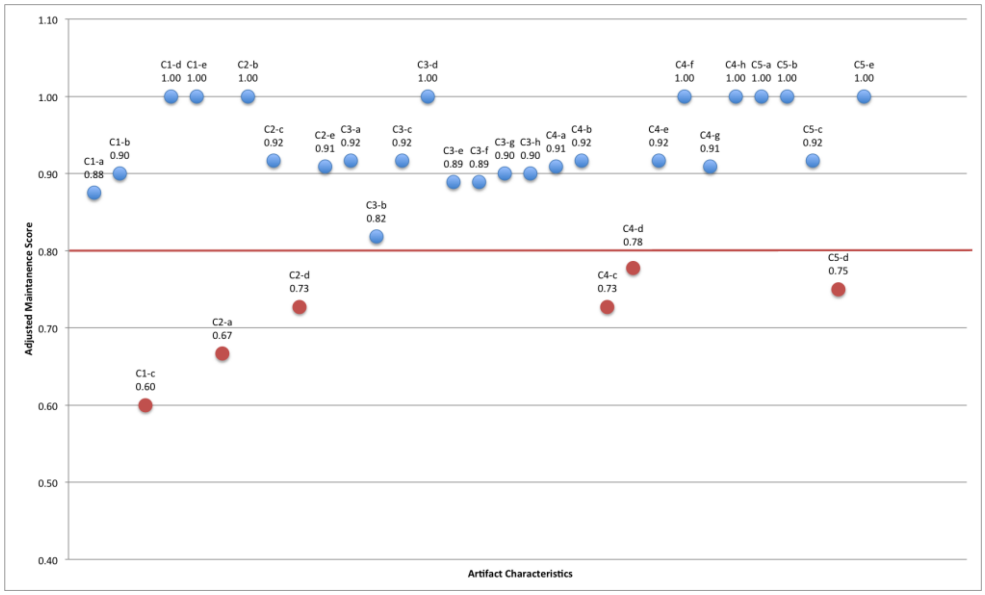

Figure 17: Artifact Refinement as per Adjusted Maintenance Scores

Utilizing basic maintenance scores, characteristics identified for future refinement were those that had a basic maintenance score of less than 0.80. Characteristics that fell just under this value but not significantly lower (between 0.70-0.79) were tentatively kept in the artifact for the purpose of future refinement and clarification. Any characteristics that scored below a 0.70 were removed from the artifact entirely and would not be included in future refinement cycles. The characteristics that scored at or above 0.80 were preserved and entrenched within the artifact and would not be subjected to any future refinement processes. Another way of understanding the inclusion and exclusion actions is to recognize that if 3 or more respondents indicated to exclude a characteristic, it was removed from the artifact; if 3 or more respondents indicated they were undecided about a characteristic than it was resigned to future refinement but not excluded unless it also breached the minimum maintenance score in addition to having multiple undecided votes.

When it was difficult to determine the inclusion or removal of some of the characteristics due to a number of undecided responses and indecisive maintenance scores, the effectiveness ratings were also referred to in order to assist in making a final decision regarding the final artifact. In such cases as this, a cross-referencing between the effectiveness ratings and the maintenance scores, both before and after excluding the undecided responses, aided in deciding whether to remove the characteristic from the artifact or not. If the maintenance values provided little definitive conclusion about inclusion (because of a large amount of undecided responses) then the low effectiveness rating was the determining factor in the removal of the characteristic. Therefore, the decision to remove a characteristic involved three steps and interpretations of different datasets starting with the basic maintenance value being examined. If this data did not decisively aid in the decision to exclude or maintain a particular characteristic, than a cross-reference was done between the effectiveness rating and the adjusted maintenance

score. In the event these two datasets still did not provide a definitive conclusion regarding the characteristic's inclusion or exclusion from the artifact than the adjusted maintenance value was also examined to determine how well the characteristic performed when compared by only inclusion and exclusion responses.

Although categories were not formally subjected to questions regarding their inclusion or exclusion from the artifact, it was possible to determine how research participants assessed the categories based on how they assessed the individual characteristics within each category. The two categories that garnered the highest general support for remaining mostly unaltered within the artifact were Category 4 and Category 5. This evaluation was based on basic maintenance, which resulted in lower general scores but which were still above the minimum quota value. When calculations were adjusted to determine maintenance scores between only those decisions to include of exclude characteristics, than Category 3 also scored well. When undecided responses were excluded from the computation, all five categories scored above the minimum maintenance value. When undecided responses were also considered than all of the maintenance scores dropped. In the case of Category 3 it dropped significantly. Because of the uncertainty behind undecided responses it was decided that a lower maintenance value of 0.70 would be used to evaluate the confidence the respondents had regarding entire artifact categories. This was easily justifiable as none of the categories suffered complete losses of their entire list of characteristics when exclusion calculations were evaluated. Therefore, all categories would require representation in order to encapsulate their remaining characteristics within a refined artifact.

When examining the individual characteristics based on their basic scores for inclusion or exclusion there were some notable examples that received definitive responses either way. The four characteristics that received a maintenance score of 1.00 (the highest possible score for inclusion) were characteristics C2-b, C4-h, C5-a, and C5-b. Similarly, two characteristics were easily removed from the artifact based on inclusion and/or exclusion values of 0.50, which were the lowest scores in the entire artifact. These two characteristics were related to similar concepts of obedience and authority and therefore point to a possibly theme regarding their easy removal by the respondents. These two characteristics were C1-c and C2-a. Many of the other characteristics scored safe values from 0.83 and 0.92 leaving twelve of the remaining characteristics ranging among more questionable values, which ranged from between 0.58 to 0.75. It was these twelve remaining disputed characteristics that underwent cross-referencing between their effectiveness ratings and the two types of maintenance scores to eventually finalize a ruling concerning their removal or inclusion in the final artifact in a reliable and justifiable manner. These were characteristics C1-a, C1-b, C1-d, C2-d, C3-b, C3-e, C3-f, C3-g, C3-h, C4-c, C4-d, and C5-d. Although many of the questioned characteristics ended up being included in the artifact based on their high effectiveness ratings, a number of characteristics where either excluded or relegated to tentative status within the artifact and identified for future refinement phases based on their low effectiveness ratings in combination with the indecisive maintenance scores.

In summary, after all of the characteristics underwent their individual analysis for inclusion or exclusion, six (6) artifact characteristics were determined to lack overall

support from the respondents based on either a poor maintenance score or a poor evaluation from the cross-referencing of relevant data. These six characteristics were subsequently removed from the artifact. The removed characteristics were:

- C1-a: constant tardiness is met with disciplinary action
- C1-c: rules and regulations must be obeyed
- C2-a: teacher's authority is ultimate and respected
- C2-d: teacher punishes or rewards students based on performance
- C3-f: motivation and pride in a job well done is referred to when deciding final grade
- C4-d: assignments not completed on time are penalized

Another four characteristics were determined as questionable and remained in the artifact in order that they could be addressed in greater detail during a second phase of artifact refinement. During a future phase of refinement these characteristics will be targeted for explication by research participants regarding the rationale behind their uncertainty about the value of these characteristics for the final artifact. This explication would hopefully better determine if the respondents were unclear about the significance of the characteristics or if they were uncertain about their meaning based on how they were articulated in the questionnaire. This sort of discrepancy could have been determined during follow-up interviews, and with limited responses in the opinion boxes in the questionnaires, it was better to revisit these characteristics in future studies and refinement initiatives by placing them on tentative status within the artifact. The four (4) characteristics that would require future examination before a final artifact can be determined were:

- C1-b: poor attendance is met with disciplinary action
- C3-e: critical thinking is rewarded and improves grade
- C4-c: assignments not completed on time are penalized
- C5-d: students are encouraged to examine teacher behavior to identify various soft skills being displayed

Concluding the first phase of refinement does not indicate that a final artifact can now be subjected to trials within the setting the respondents are situated in. Rather, in order to ensure the best possible ecological validity of the artifact it is important that all of the respondents are confident with the artifact and willing to attempt a formal experimental trial by applying it within the Saudization VET setting for which it was designed. As stated earlier this would be a future goal for this study and remains a future objective of the soft skills artifact designing initiative undertaken here. The final artifact that was complied, based on this study's first phase of refinement, can be found in Appendix 5.

5.5 Benefits to Artifact Implementation

When asked earlier in the questionnaire if improved soft skills education would have positive impacts on Saudization VET programs and the output they produced, there was unanimous consensus that it would. However, this question did not delve further into details about the specificities of the possible benefits this artifact would yield for Saudization graduates undergoing its curriculum and teaching strategies. Also, any new change or novel component to an educational process will most likely face challenges as a natural part of the adjustment process to altering the status quo. The last set of questions in this study's questionnaire dealt with outlining respondent opinions regarding some possible benefits the artifact may impart during its initial implementation. A list of possible benefits was geared at outlining only the positive impacts felt by students and future employers since these are the groups targeted by the Saudization process. The benefits listed in the questionnaire did not address the possible beneficial professional development of instructors involved in the vocational instruction of soft skills, which is a benefit of the EDR methodology rather than the artifact itself.

The benefits that most respondents indicated a consistently stronger approval for were related to benefits faced by employers in the labor market rather than the benefits the students may experience. 9 of the 12 respondents denoted strong agreement that improved soft skills education in Saudization VET programs would result in a higher level of satisfaction employers feel with their new Saudization program hires. In another question, 8 respondents also indicated strong agreement that improved soft skills education would improve company productivity. The student-related benefit that generated the most agreement regarding its positive impact after the adoption of improved soft skills teaching methods was in relation to the increased desirability of Saudization VET students by prospective employers. This possible benefit was followed closely by increased promotional opportunities being available to students that have undergone improved soft skill education. Global competitiveness and an improvement in local employability both generated less support. Conversely, 1 respondent even refuted the assumption that improved soft skills education would positively impact and benefit the local employability of Saudization VET graduates. The respondent that indicated this worked with the Saudi Arabian HRDF and may be responding based on the knowledge that Saudization graduates are, currently, very difficult to place within the local labor market because of stigmas and stereotypes suggesting Saudi nationals possess poor work-related soft skills. Many nationals might not be given the chance to prove their soft skills aptitude and so improving the local employability of Saudization graduates may require a shift in more than just the skills they are bequeathed with and instead may require targeting societal and cultural opinions in the region that still dominate and discriminate against local employees. The proposed benefit that produced the least amount of support was with respect to improved job satisfaction felt by employees working with better soft skills competency within the workplace. However, employment nationalization programs are not designed to improve employee satisfaction, unless perhaps on an introspective level, but rather are charged with improving productivity, which was indicated by the respondents' opinions. For a list of the benefits examined, and respondent opinions about their impact, see Figure 18 below.

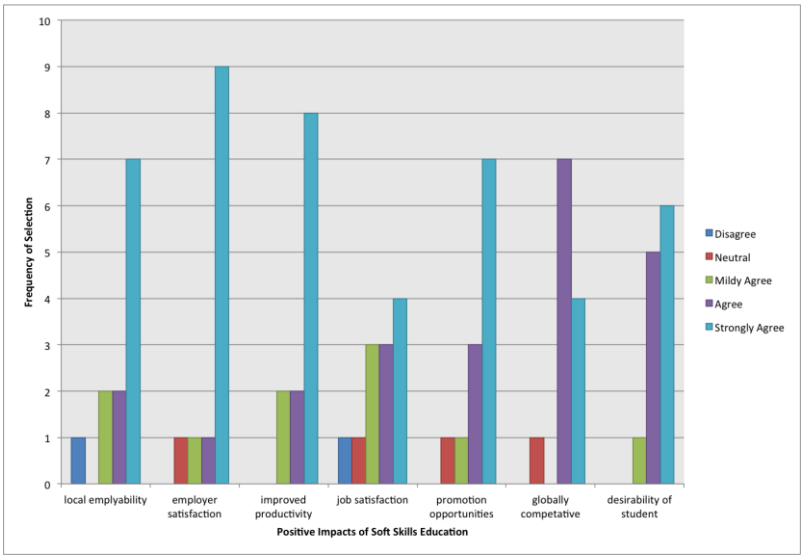

Figure 18: Opinions about Artifact Benefits

5.6 Challenges for Artifact Implementation

The final set of questions related to the teaching artifact dealt with the possible challenges the artifact may face in its successful implementation and production of Saudization VET output better prepared for soft skills aptitude. The research participants were asked to indicate which possible challenges outlined in the questionnaire would be seen, in their opinions, as impediments to the artifacts function or adoption. The question was design to provide multiple levels of negative impact for each of the challenges, so as anticipated the respondents very seldom indicated that a challenge would not impact the artifact's implementation or success. Because changes and reforms to any form of the educational process is fraught with the uncertainties of destabilizing the natural status quo, it is important to determine which challenges provoke the most apprehension from those persons that are most likely to be impacted by such changes taking place.

The challenges that indicated the fewest possible impediments to the successful implementation of the soft skills artifact dealt with cultural limitations or logistical limitations accompanying the formal educational reform process surrounding teacher and student expectations. Although only 2 out of the total 12 participants indicated that such impediments would not impact the artifact's implementation, the majority of the remaining research participants indicated the belief in a slight or temporary impact of these challenges being possible. Fewer, overall, participants indicated challenges themed around cultural attitudes toward soft skills education or educational reform procedures linked to teacher and student roles would be limiting factors to the artifact. However, there was a notable amount of respondents, 8 out of 12, that did express concern over the limitations the artifact may face due to a resistant attitude to educational reform in general. See Figure 19 below for details on respondent opinions about challenges the artifact may face.

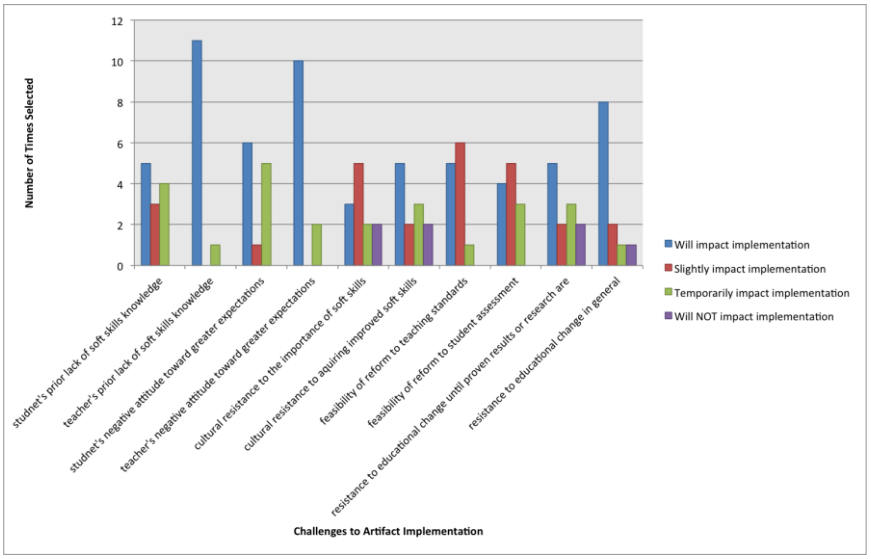

Figure 19: Opinions about Challenges for Artifact Successful Implementation

The most obvious trend in participant responses was in relation to how the implementation of a novel mode of soft skills education would be borne by the instructors of Saudization VET programs. An overwhelming majority of respondents indicated that the most notable limitation to the artifact's successful implementation would be the result of the Saudization program's instructors either holding a negative attitude toward the greater expectations this artifact would entail for them and the prior lack of soft skills knowledge these instructors may have. With respect to the perception that a teacher may impede the soft skills artifact due to a resistance to the possible increased responsibility of serving as a model for soft skills best practice, 10 out of 12 respondents indicated that this would be a challenge. Furthermore, when asked if a teacher's prior lack of soft skills knowledge would serve to impact the artifact, 11 respondents indicated this would be a challenge as well. The respondents revealed an undeniable lack of confidence in the ability of instructors to adjust to, and adopt, the soft skills artifact designed in this study. It would be interesting to determine in future phases of refinement, if this general concern with instructors was related to a lack of trust in the instructor's abilities and work ethic, or if this trend was the result of the respondents' understanding that the instructors were the keystone to the artifact and so would require the most adjustment. This issue will be revisited during the discussion about the intervention theory related to this artifact.

This trend in general concern for the ability of instructors to adjust to the artifact was not found in the responses the research participants provided when reflecting on the same potential limiting factors of student attitudes toward greater expectations and lack of prior soft skills knowledge. The challenges present from students did not reveal any more significant indication of impediment than any of the other possible challenges. As far as potential human impacts on the artifact's success, the teachers were the notable concern. Again, although it was not within the scope of this study, the importance of the role of the teacher for the artifact's successful implementation would require further

studies into the professional realities of teachers, both of Saudi and foreign nationality, within the Kingdom of Saudi Arabia.

5.7 Research Participant Personal Reflections

The second peripheral objective of a design research study regards the professional development of respondents and practitioners involved in the research activity. In order to fully accomplish this secondary objective it would have required a full educational design research study, with multiple artifact refinement iterations, in order to impact the participants in a meaningful, substantial, and long-term manner. That is because in a typical EDR study, the participatory nature of the research involves the practitioners (e.g., the instructors of Saudization VET programs) not only in the design and refinement of the artifact but also its eventual implementation, which often involves some reform or change to the current status quo within the institution and the personal practice of employees. Despite the limited scope of this studying restricting the possibility for professional development, a minor amount of assessment was conducted on this front in an attempt to address any possible short-term impacts and how this may possibly reflect in more long-term impacts.

The respondents were asked to assess how their involvement in the study impacted their own reflection on their soft skills knowledge and practice (Q23-Q26). The results of these questions are below in Figure 20. Apart from an occasional response that indicated confidence with current soft skills knowledge and aptitude, a large majority of the respondents indicated that being more aware of soft skills as a result of the questionnaire spurred more interest in better understanding their own use of soft skills in the workplace. By making the respondents more aware of soft skills it was hoped that, even if only momentarily, the conscious focus and awareness of these skills would reflect in their work for even a short time. The goal of drawing attention to personal responses such as these was to try and determine how an educational design research study about soft skills education could help participants, such as Saudization students, practitioners, and even administrative staff, reflect on the topic with respect to their own professional aptitude and development. As discussed earlier, this is another, peripheral, objective and goal to EDR. By involving the subjects of the study in the design and development process of the artifact it was anticipated that professional and personal growth would result. In future phases of this research, with instructors undergoing teacher training, the professional development of the participants will not only be more substantial but also measurable for future studies.

Although the data collected from the series of self-reflecting questions did indicate a strong agreement for the questionnaire making soft skills more at the forefront of the respondents' minds, it did not indicate if this awareness translated into improved professional performance in either the long-term or short-term. It can only be speculated if the occupational performance of the research participants was adjusted to better reflect more awareness of valued soft skills or if they were better able to execute such skills. When the artifact is implemented in future EDR phases and experimental trials, there needs to be some method that not only makes practitioners and students aware of

soft skills when they work with the artifact, but also ways to improve these skills. By involving the respondents in such future study phases and trials it is hoped that this development will take place both because they will be excited about being a part of the study but also because, by taking part in the study, they will need to undergo certain transformations to make the artifact possible. This is a subject for the intervention theory.

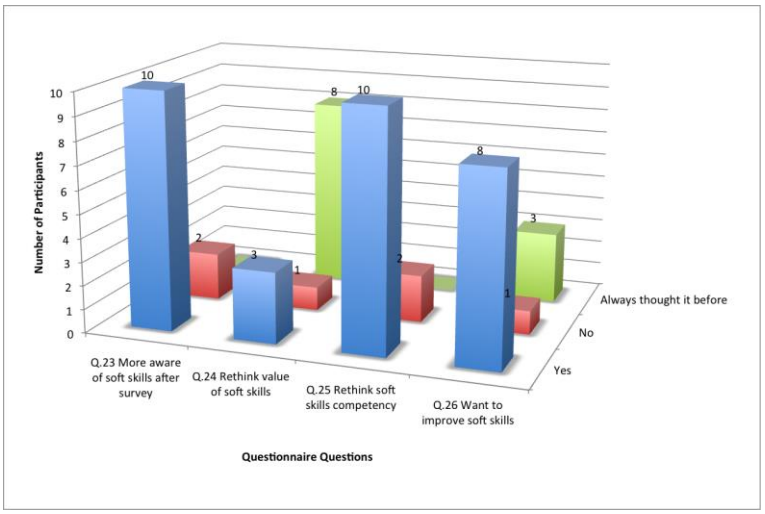

Figure 20: Post-Questionnaire Participant Personal Reflections

Chapter Six
Discussion

The findings and results gathered from this study served well to confirm the theoretical and practical assumptions underpinning the proposed teaching intervention recommended for improving the education and knowledge transfer of soft skills in Saudization vocation education and training (VET) programs. By gathering opinions from former Saudization students and current practitioners the value of soft skills and their importance for vocational education was demonstrated. Furthermore, the feedback collected from these participants evaluated the effectiveness of various characteristics of the designed artifact with respect to soft skills education in addition to determining which were of utmost importance to maintain within the artifact or which could be removed. Utilizing feedback from specific participants attained from the context in which the original artifact was developed ensured better ecological validity of the artifact for future experimental trials that will assess the artifact when subjected to experimental trails.

The artifact refinement process also revealed some implementation nuances that would also be required for the successful application of the artifact within the context examined in this study. These procedural elements linked to the optimal implementation of the artifact are collectively referred to as an intervention theory, which can be alternatively viewed as a set of guidelines that drive the successful adaptation and application of the substantive elements of the artifact within various contexts. This intervention theory was one of two peripheral objectives of the educational design research methodology. The other was the professional development of the research participants via their own personal reflections about the artifact, the study, and any adjustments to their behavior or professional conduct that come about as a result of the use of the artifact. In light of the limited scope of this study and the very limited exposure the research participants had to soft skills contemplation and reflection, the ability for this study to truly impart professional development of a sustainable and reliable nature was inadequate. Despite this one limitation to one of the peripheral objectives of this design study, the first peripheral objective, the intervention theory, was able to be accomplished within the scope of this study.

Finally, the study also served to bring to light some interesting details that were unforeseen in the original research undertaking and that could not be addressed within the scope of this study or with the data that was collected. These unforeseen details may spur future investigations to shed further light on the context of this study, the methods or theories underpinning the artifact, or the artifact itself.

6.1 Revisiting Artifact Theory and Concepts

The artifact examined during the course of this study was based on the practical assumption that soft skills were important for improving the success of Saudization

VET programs by making the graduates of these programs more relevant and competitive within the domestic labor market. All the respondents in this study confirmed the relevance of soft skills within the context of the Saudization VET program, which verified the importance and need for an artifact such as the one designed in this study. Similar to the criticisms levied by Khan (2008), that current Saudization output lacks adequate soft skills competency despite employer demands for such skills, the opinions of the experts in this study also indicated an improvement would come about as the result of improving soft skills. All the respondents agreed that incorporating some degree of soft skills education to compliment essential hard skills instruction would not only improve Saudization educational programs but also the quality of the graduates they produced. The respondents also suggested that soft skills were for the most part either equally or more important than hard skills during actual employment. This focus on educating VET students with skills desired and required in the labor market was referred to as 'vocationalism' by Grubb and Lazerson (2006) and requires an adequate assessment of what skills are considered relevant for the workplace in order to confidently design a teaching intervention/artifact that will prove relevant for future employment. This task is easier when considering what hard skills to include, but soft skills are diverse and have many different aims and uses and so it is important to first assess the occupational value of various soft skills in order to select the correct ones for integration into the artifact.

The second phase of questioning for the respondents dealt with assessing various particular workplace soft skills in an attempt to identify patterns of preference for experts involved in a particular Saudization industry. In the case of this study the respondents were all selected from a Saudization program training staff for a high profile public sector allied-health institution. The respondents were asked which soft skills they deemed important in an attempt to identify, in their opinions, some of the most important and relevant soft skills to include in vocational education for their context of employment. Although there were some distinct skills that were measured more highly or lowly than others, for the most part it was difficult to determine if these ideas where industry related since there was no comparison with other types of Saudization programs targeting other industries and sectors of the market. For the purpose of this study, which was aimed at designing and refining an artifact for the context in which these respondents were situated, the respondent's opinions about particular soft skills helped in assessing the value of various characteristics, which were related to the selection and evaluation of particular skills that would be used for later improvements in the workplace. Since skills are the most important aspect involved in assessing the success and relevance of VET programs it was important to include the right skills in the educational artifact (Hart, 1978; Barrow, 1987; Griffiths, 1987; and Ainley, 1993). By using the respondents' opinions it was easier to refine the artifact in a manner that best aligned it with the needs of the specific Saudization program investigated, and which would underpin the methods highlighted within the soft skills artifact by emphasizing and bringing the workplace environment and ethos into the educational atmosphere. The skills that the respondents deemed most important did, during later assessment of the artifact's individual characteristics, showcase how workplace relevance of that skill did impact its effectiveness rating and its subsequent

removal or inclusion in the artifact. Once some general understanding about how the respondents viewed and assessed the value of particular soft skills was determined, it was important to then use this data to make the artifact conducive to learning by making it contextually relevant. In response to the first research question related to how Saudization practitioners and former students would view soft skills and soft skills education, it was clear that strong support for the importance of soft skills was identified in addition to clear preferences for certain soft skills while uncertainty regarding others. Also, the concept of implementing soft skills education into Saudization VET was strongly supported. This implementation would require incorporating less traditional modes of teaching espoused by the structure and design of the soft skills teaching artifact examined here.

The education of soft skills was associated with the need to incorporate more novel teaching strategies and approaches that were highlighted by the five categories of the artifact. When asked to assess both the traditional and novel teaching methods for soft skills it was apparent that the traditional use of work internships was most highly regarded with the novel teaching strategies of modeling, incorporating soft skills components into the classroom, and formally assessing soft skill components following closely. Based on these results, an effective teaching strategy supported by the respondents in this study would favor a synthesis of traditional and new teaching methods with more attention placed on the use of novel methods.

The next phase of questioning was in relation to the artifact and its various characteristics in an attempt to refine it to suit the needs of the context it would eventually be tested in. The respondents were asked to rate the effectiveness of the artifact's categories and individual characteristics in addition to later deciding whether to include or exclude some of the characteristics in the revised artifact. Before allowing the respondents to decide on the removal of any characteristics they were first asked to rate how effective each characteristic was for soft skills education. It was hoped that these two questions would allow for some recourse for data triangulation in order to determine, to a better degree, why some of the characteristics would later be excluded from the artifact. When triangulating responses on characteristic effectiveness and maintenance scores, there was a general pattern of agreement between these two variables, which suggested that respondents that rated characteristics low in effectiveness would later choose to exclude them from the artifact. As stated in the chapter outlining the research findings, there were some anomalies detected that strayed from this assumption. Why these anomalies occurred would require further investigation and was not the main focus of this study. It was more important to devise an artifact that would be ecologically valid.

This artifact refinement process and the resulting artifact served to address the third research question guiding this study: how feedback from participants could be used to assist in the refinement process to ensure greater ecological validity of the resulting artifact. Because of the use of quantitative methodology it was important to determine how best to implement participant responses in a meaningful manner that would support adequate and suitable artifact refinement. In this study, this resulted in having more than one simple variable impacting the assessment of the artifact based on respondent

decisions to exclude or include various characteristics. The collection of data on both effectiveness ratings and inclusion preferences for each characteristic was one way to allow for more robust refinement analysis. Also, in light of the possibility to defer decisive indications of inclusion or exclusion it was also important to consider what this trend indicated for the refinement process and how it could be reexamined in future iterative refinement phases. With the use of this multi-tiered cross-referencing of data it was possible to produce an artifact well-suited to the next stage of an EDR study, which would be the implementation of the artifact to assess its performance.

As regards the second research question related to how the research participants would rate the effectiveness of the various artifact categories and characteristics, a recognizable preference for some and a lack of support for others was detected. This variation in effectiveness ratings served to inform one stage of the refinement process. The overall highest effectiveness ratings were given to characteristics that dealt with the role of the teacher as a soft skills best practice exemplar as well as characteristics within the various categories that dealt with the positive interaction of the teacher with students. Additionally, there was a marked trend in characteristics related to punishment and consequences receiving lower effectiveness ratings, especially by former Saudization VET students. Also, when examining effectiveness ratings between expertise groups, there was some marked variation in ratings given for more abstract concepts or specific soft skills targeted as objects of learning. All of these trends were later revisited when developing the intervention theory.

The general consensus with respect to the effectiveness of the categories both upheld and questioned the theoretical foundations underpinning the design and function of the original artifact. The first two categories, related to the learning environment and the relationship between the teacher and students, did not garner as much support as was expected based on the work of Hyland and Winch (2007) that optimal knowledge transfer (i.e., learning) would take place with the application of behavioral reductionism and other psychological approaches that encouraged the students viewing their roles and responsibilities in the classroom to be more in line with what would later be excepted of them in the workplace. However, the characteristics that prompted low support were those that dealt with the punishment of undesirable behaviors, which related to the atmosphere of the classroom and the teacher-student relationship, but were not directly related to the hidden curricula of the classroom. This use of Jackson's (1968) hidden curriculum to mold soft skills aptitude, which was the underpinning teaching strategy of these categories, was supported by respondent opinions about characteristics within these categories related to the teacher molding work ethic and the expectation of professional conduct in the classroom culture. The characteristics that dealt with hidden curricula, within these categories and others, did receive support by the participants, which revealed the overall support of a hidden curriculum, and its subsequent strategies of mimetic learning and the role of the teacher, which was the real core of the artifact. This hidden curriculum was present throughout the artifact and if appropriately molded and controlled can be made to produce positive results for the social learning of soft skills, as Kentli (2009) suggested.

Upholding the theoretical underpinning of Category 5, related to the role of the teacher and the use of this role in the classroom as an exemplar of soft skills good practice, did receive a large amount of overall support from all the respondents with respect to its effectiveness and its maintenance within the final artifact. Furthermore, the category of the artifact that detailed how the role of the teacher was meant to impact soft skills education was, from the outset, a highly regarded aspect to effective soft skills education based on opinions and feedback from the respondents. This concept of having the instructor serve as a role model was discussed by Reiss (2009) and was supported here as an optimal mode of teaching desirable behavioral skills. The role of the teacher was centered on the idea that students could use the instructor as an exemplar and mimic the kinds of behaviors deemed desirable within the program and eventually the workplace the graduates would be employed in. This form of mimetic learning was identified by Wulf (2008) as one of the most basic modes for learning appropriate social attitudes and behaviors, which was supported by the overwhelming positive responses this teaching strategy received from research participants that had only their commonsense and personal leaning experiences to inform their opinions. Having the students mimic the instructor and begin molding their behavior would improve Szulanski's (1996) concept of 'stickiness' because behaviors would be learned and reinforced in the classroom and later transplanted to the workplace once they have become a habitual part of everyday professional practice. Encouraging mimetic learning was also strongly supported because the respondents did rate this characteristic quite highly. The entire concept of using the teacher as an exemplar was based on Bandura's social learning theory, as discussed by Philips and Soltis (2009), which suggested learning takes place in a social setting based on interactions and behaviors. The study supported the belief that leaning of this sort was one strong approach to soft skills education. The artifact was underpinned by a theoretical focus on social learning theory as an optimal mode to understanding and ensuring best knowledge transfer of the targeted skills and was supported by the respondents.

Strong support for the value in utilizing the role of the teacher as an exemplar for modeled soft skills knowledge was a key finding gleaned from the information gathered in this study. However, it was found that not only was the role of the teacher supported with respect to its effectiveness for soft skills education, it was also a weak link when considering any challenges the artifact may face during its implementation. Although there was strong support for the role of teacher as a model for soft skills behavior and as a mentoring figure in being available to communicate with students about performance and expectations, there was, on the other hand, also the challenge in aligning teacher attitudes toward greater expectations and their limited soft skills knowledge to the successful application of the artifact. This means that the role of the teacher needs to be carefully examined in order for this artifact to work successfully when enacted in either experimental trials or future Saudization VET programs. For this purpose the complimentary intervention theory must involve some aspect within its guidelines that accounts for the role of the teacher being improved via being endowed with better knowledge on how to serve as a model for soft skills good practice.

There was also some degree of data variation and lower indications of effectiveness when respondents assessed categories that dealt with specific soft skills and their

assessment. Since the categories received overall good support, the focus of the varied and low effectiveness ratings indicated by the respondents related to the characteristics within these categories. It was these characteristics that would require more detailed attention on how to best refine them to create a suitable and relevant soft skills artifact. Similar to the assertions made by Warhurst, Grugulis and Keep (2004) it is important to rethink the particular soft skills incorporated into the artifact to make sure that they are the skills that are currently desired in an ever-changing and evolving economy. For this reason, any future soft skills artifact may need to allow for some element of constant adjustment of the skillsets incorporated into it in order to ensure its relevant and successful function. That is, some soft skills considered important for a public sector health institution may not be the same as those skills deemed necessary for a private sector customer service based industry such as a telecommunications company. Rather than producing an artifact with rigidly pre-selected skillsets, a method needs to be devised for how to minimally adjust these characteristics of the artifact, while maintaining its general structure and components, to incorporate the soft skills desired in different occupational contexts. Because the artifact designed in this study was tied to a particular context, the selection of particular skills was already incorporated into the artifact's refinement. Rather than including this adjustment element within the artifact itself, the mode of adjusting the artifact will be undertaken as part of a series of guidelines for how to best implement the artifact: the intervention theory. In future refinement studies, for this artifact and for the generalization of the artifact to other contexts, more dialogue among research participants will be used to adjust the skillsets of the artifact's characteristics, which may result not only in the decision to exclude some characteristics but to also include skill-related characteristics that were not a part of the originally designed artifact.

6.2 An Intervention Theory

The data analysis identified peripheral elements that would impact the successful performance of the artifact within its context. Such elements related to how to better structure the artifact with respect to the selection criteria for its individual characteristics and also ways to better establish fundamental groundwork to ensure the artifact can be accomplished in the event the new teaching methods require preparation on the part of VET instructors. An intervention theory was generated from these general issues and challenges by formulating possible countermeasures and solutions about how to best address and mitigate their negative impact on the artifact. These challenges were important to address so that future implementation of the artifact could be done using the guidelines outlined in the intervention theory, which would account for best ecological validity and function of the artifact within a particular context.

In the case of this study, and the specific respondents involved, two cautionary points were identified. First, in light of the more varied responses about artifact characteristics related to particular soft skills, and their sometimes lower effectives ratings, it became apparent that the success of the artifact would depended on the appropriate selection of industrially relevant and required soft skills for targeted education and training. This variation in opinions about particular softs skills was most

apparent when examining effectiveness ratings awarded to various characteristics based on the different expertise groups. Distinct professional experience and occupations could have been one factor in these varied responses. Regardless of the cause for this variation, this finding did highlight the need for the inclusion of relevant expertise groups shaping and formulating the objects of learning (i.e., particular soft skills) targeted for inclusion within the artifact. The selection of soft skills relevant for specific industries needs to be identified and later incorporated into the artifact's particular characteristics. This identification process needs to be constructed by collaboration between industry employers and vocational institutions to ensure that the soft skills being taught within a Saudization VET program are most desirable and relevant to future employers.

The second, and perhaps most important, element to the intervention theory involved the role of the teacher. Because of the importance of the teacher for successful implementation and execution of the soft skills educational strategy outlined within the artifact, it is vital to enact measures to best prepare teachers for serving as exemplars for soft skills good practice. As indicated in the findings related to impediments to the success of the artifact, instructors with weak soft skills or work ethic were identified as key limiting factors for success. This is especially problematic for a soft skills intervention that places the role of the teacher at the epicenter of the mimetic teaching strategies employed. This preparatory approach for informing and readying instructors, essentially a form of teacher training, must be tackled before any Saudization program that utilizes the soft skills artifact can commence. This would require a particular form of teacher training program geared at educating instructors on softs skills best practice and how to serve as more than just an instructor, but how to be an exemplar coach and role model within the classroom. Implicit within the reshaping and reeducation of the instructors is an element of professional development for these instructors, which is a peripheral goal of EDR that can be accomplished as part of the artifact's experimental trials. It stands to reason that some element of professional development on the part of instructors, that are not already confident with serving as idealized soft skills exemplars, will be vital to the successful implementation of the artifact.

The simplest way to summarize an intervention theory, within the context of the overall findings of the study, is to use a *heuristic statement* that incorporates all the major objectives and conditions required for the artifact (Plomp, 2010). In the case of this study the findings can be summarized using the following, popularized, format:

> If you want to design intervention X for the purpose/function Y in context Z, then you are best advised to give that intervention the characteristics A, B, and C [substantive emphasis], and to do that via procedures K, L, and M [procedural emphasis], because of arguments, P, Q, and R. (Van den Akker, 1999, as cited in Plomp, 2010, p.20).

Although this statement format is excellent for summarizing the findings of this study, the statement was modified slightly to focus on the categories of the artifact rather than the characteristics. Furthermore, the important elements of the artifact were highlighted for easier reference. The main findings of the study, with especial attention paid to the intervention theory, are therefore written as:

If you want to design a soft skills teaching intervention/artifact for the purpose of improving soft skills education and the eventual transfer of this knowledge into the workplace within the context of Saudization VET programs, then you are best advised to give that intervention:

- an environment that mimics the expectations of the workplace
- a teacher-student relationship that encourages students to be professional and self-supervising
- include formal educational components that target soft skills and make them a visible part of the educational experience
- actually assess soft skills aptitude based on the new classroom components mentioned before
- demand that the teacher is a positive role model for soft skills education by serving as an exemplar for soft skills best practice in the workplace.

When giving the artifact the aforementioned substantive elements you must ensure that its implementation is done via procedures that:

- ensure that individual Saudization program instructors tailor the artifact's characteristics and the soft skills targeted for assessment and involvement in the curriculum based on what is deemed necessary for the future industry the Saudization program is geared toward, and
- guarantee a process is put in place to educate the teachers so that they can serve as appropriate soft skills exemplars.

The reason for requiring these procedural elements is because of arguments such as:

- the study revealed more diverse and adverse opinions among the respondents when faced with the assessment of particular soft skills within the artifact's characteristics in addition to the varied opinions displayed when they were asked to evaluate and select a list of soft skills at the beginning of the study, and
- when looking at the overall trend in respondent opinions about the artifact's focus on the role of the teacher, it became apparent that the teacher was seen as both a vital link to the effective teaching of soft skills and yet a possible limitation to the success of the artifact in the event the teacher was neither motivated nor prepared to serve as a high-profile exemplar in such a manner.

6.3 Rethinking Professional Development

As mentioned earlier, the peripheral objective of professional development coming about as the result of employing EDR methodology was of very little impact in this study. This was because the research participants involved in the artifact's first refinement had very limited exposure to the study and because they were not faced with the implementation of an experimental trial of the artifact that required the enacting of the accompanying intervention theory. However, with respect to professional

development, the intervention theory did identify one particular form of professional development that was not only an outcome of the study but would also be a crucial component to the success of the artifact for soft skills education.

Rather than professional development being a product of the artifact, it became an essential element for the Saudization educational practitioners charged with shaping their roles in the classroom into exemplar soft skills practitioners. This would require instructors that are not already competent in soft skills execution to undergo training and seminars related to soft skills knowledge and the psychological assumptions and theories that underpin the form of mimetic learning espoused in this artifact. Of course this professional development would impact some instructors more than others, based on the varied personal work ethic and pedagogical backgrounds each practitioner already possess, but in all cases, the intervention theory would be most responsible for a significant portion of the professional develop this artifact creates.

Another form of professional development that was not present in this study but which would be the result of a larger EDR experiment related to this topic would be the betterment of Saudization VET output. It is the goal of this artifact to continuously produce more soft skills competency among Saudi nationals until the critiques levied against the negative impacts of Saudization policies on industrial productivity no longer dominate the discourse on the sustainable nature of Saudi Arabia's domestic labor market.

6.4 Reflection on Methodological Limitations

The nature of this study presented a number of limitations both in its design and execution. Because of the relatively small relevant population, and because all of the research participants were all purposefully extracted from within the same educational context, not a significant amount of deviation or varied data was collected. Although this does imply positive impressions of the artifact, more diverse responses may have served to shed more light on how the artifact could be better refined. This is especially true when referring to the valuable insight that could have been offered by future employers of Saudization graduates who are demanding soft skills aptitude, but who were not included in the original design of this study.

Also, because this was a questionnaire-based study the information gathered spawned almost as many questions as it answered. The questionnaire was designed to gain basic information about ratings and selections of artifact characteristics and soft skills. Although there were opportunities within the questionnaire design that allowed for the respondents to explain their answers, this aspect of the questionnaire was not utilized. Perhaps because of the already demanding and lengthy nature of the questionnaire or because of a possible nonchalant attitude present among the participants, it was difficult to discern any true motivations behind respondent choices and indications for some of the questions. This was especially a limitation to the study when it became apparent that some soft skills might have been understood in various and diverse ways amongst each of the respondents. This is true, for example, about the concept of professionalism, which is a generally vague term and therefore subject to

varied personal interpretation on the part of the respondents. This element of personal interpretation could have been countered by employing follow-up interviews; however, this data collection strategy could not be employed for both cultural and logistical reasons. The decision to maintain quantitative approaches during this study was useful for this phase of the EDR study; however, it is apparent that the incorporation of qualitative data would have served to further enrich the conclusions gained from this study. Future phases of research may therefore require restructuring the questionnaire to include more open-ended questions and opinion boxes that require answers in order to proceed with the questionnaire—this may serve to guarantee qualitative input from participants within a self-completion questionnaire. The questionnaire used in this study was designed to promote a mixed-methods approach to address some of these limitations, however, because of the very limited amount of open responses and comments provided by participants this intention was not pursued. In the future, a shorter questionnaire may possibly provide more motivation for more detailed responses in opinion boxes because there may be less fatigue present when filling in a shorter questionnaire. In future iterative phases to this study much of the fundamental groundwork will no longer need to be addressed (as was done in this study) and so the questionnaires will be more open to the use of more qualitative, open-ended, questions.

Chapter Seven
Concluding Remarks

This study was motivated by an attempt to identify an educational solution for improving the output of Saudization vocational education and training (VET) programs. This educational solution, referred to as an artifact, is expected to address the problematic lack of soft skills displayed by Saudi nationals within a domestic labor market that is increasingly demanding soft skills to maintain economic productivity, sustainability, and competitiveness. To address this problem, the teaching intervention/artifact was designed and refined by gathering the opinions of various practitioners and former students involved in one particular Saudization VET program. The data and opinions collected from these participants, via a detailed online self-completion questionnaire, was aimed at assisting in determining their perceptions about the individual characteristics involved in the implementation and execution of the soft skills artifact. By optimizing the artifact with the help of Saudization experts for best possible ecological validity it is anticipated that soft skills education will become more successful and promote effective knowledge transfer of soft skills realization and practice from the classroom into the occupational setting.

The conclusion to the first iteration of the artifact resulted in a teaching intervention well suited to function within the context the respondents were situated and which, with attention to appropriate and detailed application of the accompanying intervention theory, could be successfully applied to produce more relevant output for the domestic labor market. This study was by no means exhaustive, and as a result of participant responses, a number of issues were raised for future consideration when undertaking another phase of the EDR project and also for future studies. Though unrelated to the scope of this project, these resulting issues can nonetheless shed further light and bring to the surface more rich data about related educational themes that came about during the data evaluation.

7.1 Lessons Learned

After concluding this research and referring back to the past occupational experiences that helped inform and inspire this project, it became apparent that for any future studies of this nature it would be interesting to first gather data from students and practitioners before any soft skills reforms were enacted that could skew their perspectives. This would have allowed for clearer data on how such reforms impacted the perspectives and understanding of the topics of this study by persons that would eventually become research participants. This is especially important because such prior information could also serve to determine if previous exposure to the changes implemented in the Saudization program framing the context of this study had prepared the research participants for the questions and expectations of this study. Gathering opinions prior to any exposure to educational soft skills reforms would have created more comparative

data on how respondents answered questions about softs skills and soft skills education. It is this prior exposure of the participants to an element of soft skills educational change that may have resulted in less conflict, and greater general agreement, with the proposed artifact. It was hoped that greater refinement would have taken place during the course of this initial iterative phases; however, the artifact remained largely unchanged.

Another lesson that came about as the result of completing this study was about the need to conduct a more participatory initial design of the artifact rather than just relying on past experience and educational theories to engineer the artifact. This may have resulted in another type of artifact with different characteristics and soft skill objects of learning for each category. It may be better for any future study of this nature to establish the categories of the artifact based on prior experience and research and then work with practitioners and other relevant bodies to formulate the composition of the characteristics found under each of the categories. Although this may also produce little later refinement, it will result in an artifact with greater ecological validity, which is the ultimate goal of a study of this nature.

7.2 Future Studies

As mentioned earlier, the limited scope of this study and the purposeful restriction in the number of stages of a usually iterative and sometimes longitudinal EDR process implied future phases of this study would eventually have to be executed. However, the future expansion of this study was expected and remained a predetermined future goal of this research. This expected prospect for future experimental development of this study aside, the course of this study did bring to light a number of issues and unforeseen phenomena that require future examination in order to better understand the conclusions gained from this study. These fringe research initiatives can serve to produce information and data related to the context and trends underpinning the realities of this study and to may allow for better conclusions about the nature of this study and the artifact it developed in future research cycles.

For example, this study initiated an interest into better understanding the role of the teacher within the Kingdom of Saudi Arabia in greater personal detail and within various educational contexts. Because the respondents indicated that Saudization instructors would be the weak link to the implementation of the artifact, it would be valuable to better understand what cultural or social realities prompted this response from the participants. Furthermore, because of the common strategy of using expatriate instructors within Saudi classrooms, it may be important to determine if this societal reality has any impact on the teachers themselves and their abilities to conduct their jobs within such a homogenous and hierarchical society that they are outsiders to. It may be interesting to see how this impacts teacher-student relationships and classroom expectations. This would serve to shed further light on any teaching interventions proposed for the Kingdom. To better understand the teaching profession and any cultural intricacies that were not gleaned from this study it would be important to examine teacher training and classroom culture within various Saudi institutions, in a

variety of contexts, to better develop an analytical framework for how to better approach any issues related to teacher education for this artifact.

Another possible research initiative, brought about as the result of this study, was the need for better comparative results between Saudization programs that have undergone soft skills educational reforms and those that have not. The purpose of employing a comparative educational study is to determine the merits of this artifact based on a comparison of the occupational success of Saudization VET graduates subjected to both forms of education. Such a study, which would depend on the implementation of some form of soft skill educational reforms (whether in the form of this artifact or another strategy) to create a basis of comparison, would be able to assess the true merits of the educational value in better preparing Saudi nationals for the domestic labor market. It would also create relevant datasets regarding the rate of successful knowledge transfer of soft skills. Moreover, such a comparative study would also serve to generate data on the success of Saudization programs in preparing nationals to acclimatize and succeed in the domestic labor market (which is a dataset that is unfortunately not available at the moment) and which resulted in the need for employing an EDR methodology for this study.

Another interesting research initiative would be centered on identifying or producing a teacher-training course or set of instructional resources that can be used to prepare educators for the use of an artifact similar to the one designed in this study. Of course, this may simply imply another EDR study to accomplish this task if there is a lack of prepared knowledge, research, or courses and seminars of this nature. Also, in light of the need to ensure optimal soft skills competencies on the part of Saudization VET instructors, the iterative approach to EDR may be one possible solution to producing an effective educational model of this nature.

A final research endeavor inspired by this EDR study was based on the need to better understand the value and desire of particular soft skills within different industries in the Saudi economy. In order to better aid the intervention theory, it may be helpful to conduct a study to determine the preferences of various economic sectors and businesses for specific soft skills. This would inform the intervention theory by provided a list of preselected soft skills that have been compiled based on industry demands. This would quicken the artifact refinement process by allowing practitioners and administrators the luxury of not having to filter through an entire set of soft skills, but rather only assemble an artifact from the industry-relevant and predetermined soft skills made available through such a study. Of course this list will have to be continuously revised, which can be accomplished by the contextual refinement of the artifact as industry evolves.

Improving the ability for Saudization VET programs to produce relevant and suitable output, trained in both hard and soft skills aptitude, is achievable. With the help of future research into the educational, social, cultural, and economic realities shaping the Saudi context, a better soft skills teaching artifact can be designed and implemented within Saudization VET programs. By addressing the need for soft skills improvement, such an artifact will serve to promote the sustainability of the Saudi Arabian domestic labor force and safeguard the future of a country undergoing dramatic shifts in its global identity.

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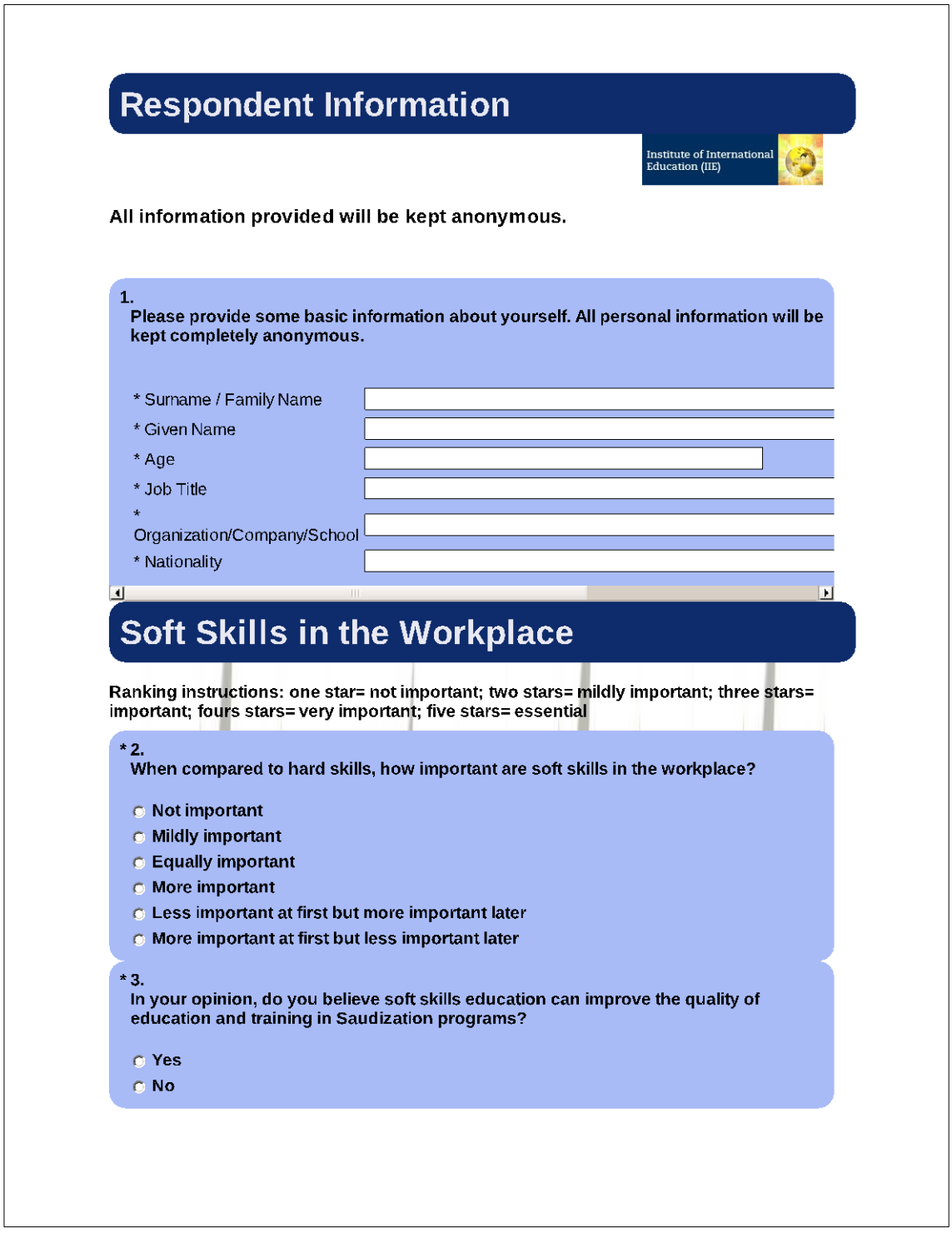
Appendix

Appendix 1: Study Questionnaire



Respondent Information

Institute of International Education (IIE)

All information provided will be kept anonymous.

1.
Please provide some basic information about yourself. All personal information will be kept completely anonymous.

* Surname / Family Name	
* Given Name	
* Age	
* Job Title	
* Organization/Company/School	
* Nationality	

Soft Skills in the Workplace

Ranking instructions: one star= not important; two stars= mildly important; three stars= important; fours stars= very important; five stars= essential

*** 2.**
When compared to hard skills, how important are soft skills in the workplace?

- **Not important**
- **Mildly important**
- **Equally important**
- **More important**
- **Less important at first but more important later**
- **More important at first but less important later**

*** 3.**
In your opinion, do you believe soft skills education can improve the quality of education and training in Saudization programs?

- **Yes**
- **No**

* 4.
In your opinion, do you believe improved soft skills education can contribute to greater success for Saudization vocational education and training (VET) graduates entering the workplace?

- Yes
- No

* 5.
Rank the following soft skills based on their importance in the workplace:
Ranking instructions: one star= not important; two stars= mildly important; three stars= important; fours stars= very important; five stars= essential

Reliability	○ ○ ○ ○ ○
Dependability	○ ○ ○ ○ ○
Adaptability	○ ○ ○ ○ ○
Flexibility	○ ○ ○ ○ ○
Team Skills / Cooperation	○ ○ ○ ○ ○
Follow rules	○ ○ ○ ○ ○
Good attitude	○ ○ ○ ○ ○
Courtesy	○ ○ ○ ○ ○
Self-supervising	○ ○ ○ ○ ○
Good attendance	○ ○ ○ ○ ○
Personal integrity / Honesty	○ ○ ○ ○ ○
Positive work ethic	○ ○ ○ ○ ○
Interpersonal skills	○ ○ ○ ○ ○
Motivation	○ ○ ○ ○ ○
Critical thinking	○ ○ ○ ○ ○
Reporting to work on time	○ ○ ○ ○ ○
Wanting to do a good job	○ ○ ○ ○ ○
Accountability	○ ○ ○ ○ ○
Complete tasks on time	○ ○ ○ ○ ○
Willingness to take instruction	○ ○ ○ ○ ○
Organization	○ ○ ○ ○ ○
Responsibility	○ ○ ○ ○ ○
Communication skills / Writing skills	○ ○ ○ ○ ○
Commitment to continued training and learning	○ ○ ○ ○ ○

*** 6.**
In your opinion, which are the twelve (12) most important soft skills to display in the workplace?
Place a mark beside the 12 soft skills you wish to include.

- ☐ Reliability
- ☐ Dependability
- ☐ Adaptability
- ☐ Flexibility
- ☐ Team Skills / Cooperation
- ☐ Follow rules
- ☐ Good attitude
- ☐ Courtesy
- ☐ Self-supervising
- ☐ Good attendance
- ☐ Personal integrity / Honesty
- ☐ Positive work ethic
- ☐ Interpersonal skills
- ☐ Motivation
- ☐ Critical thinking
- ☐ Reporting to work on time
- ☐ Wanting to do a good job
- ☐ Accountability
- ☐ Complete tasks on time
- ☐ Willingness to take instruction
- ☐ Organization
- ☐ Responsibility
- ☐ Communication skills / Writing skills
- ☐ Commitment to continued training and learning

The Artifact: 'Teacher as Exemplar'

* 7.
The traditional method of teaching soft skills includes three (3) categories. In your opinion, how effective is each category for soft skills education?

	Not effective	Mildly effective	Moderately effective	Very effective
i) soft skills lectures conducted by teacher	○	○	○	○
ii) soft skills instructional materials used by students	○	○	○	○
iii) short work internships to assess soft skills application in the workplace	○	○	○	○

Comments (optional)

* 8.
The 'teacher as exemplar' artifact works together with traditional methods of instruction and includes five (5) categories. In your opinion, how effective would each catergory be for soft skills education?

	Not effective	Mildly effective	Moderately effective	Very effective
i) classroom environment and expectations mimic a strict work environment	○	○	○	○
ii) teacher-student relationship mimics a boss-employee relationship	○	○	○	○
iii) student assessment includes soft skills aptitude	○	○	○	○
iv) assignments and projects include soft skills components	○	○	○	○
v) teacher models soft skills in his/her practice in order that students see and mimic this behavior	○	○	○	○

Comments (optional)

Evaluating Characteristics of Artifact Catergories

Each category of the artefact includes various characteristics. Please assess the value of each characteristic within the individual catergories.

* 9.
Each catergory of the artifact includes various characteristics. For the category 'classroom environment and expectations mimic a strict work environment' indicate how effective each characteristic would be for soft skills education.

	Not effective	Mildly effective	Moderately effective	Very effective
i) constant tardiness is met with disciplinary action	○	○	○	○
ii) poor attendance is met with disciplinary action	○	○	○	○
iii) rules and regulations must be obeyed	○	○	○	○
iv) workplace is respected and well maintained	○	○	○	○
v) professional behavior and conduct is expected	○	○	○	○

What characteristics, if any, do you feel are missing?

* 10.
For the category 'classroom environment and expectations mimic a strict work environment' indicate if you would like to keep each characteristic in the artifact.

	Include	Exclude	Undecided
i) constant tardiness is met with disciplinary action	○	○	○
ii) poor attendance is met with disciplinary action	○	○	○
iii) rules and regulations must be obeyed	○	○	○
iv) workplace is respected and well maintained	○	○	○
v) professional behavior and conduct is expected	○	○	○

* 11.
Each catergory of the artifact includes various characteristics. For the category 'teacher-student relationship mimics a boss-employee relationship' indicate how effective each characteristic would be for soft skills education.

	Not effective	Mildly effective	Moderately effective	Very effective
i) teacher's authority is ultimate and respected	○	○	○	○
ii) teacher meets with students to discuss performance	○	○	○	○
iii) teacher is a role model for good practice and work ethic	○	○	○	○
iv) teacher punishes or rewards students based on performance	○	○	○	○
v) reward is based on merit and performance	○	○	○	○

What characteristics, if any, do you feel are missing?

* 12.
For the category 'teacher-student relationship mimics a boss-employee relationship' indicate if you would like to keep each characteristic in the artifact.

	Include	Exclude	Undecided
i) teacher's authority is ultimate and respected	○	○	○
ii) teacher meets with students to discuss performance	○	○	○
iii) teacher is a role model for good practice and work ethic	○	○	○
iv) teacher punishes or rewards students based on performance	○	○	○
v) reward is based on merit and performance	○	○	○

* 13.
Each catergory of the artifact includes various characteristics. For the category 'student assessment includes soft skills aptitude' indicate how effective each characteristic would be for soft skills education.

	Not effective	Mildly effective	Moderately effective	Very effective
i) students are given soft skills evaluation reports as part of their student records	○	○	○	○
ii) soft skills are considered a "course" and is graded like all other courses/classes	○	○	○	○
iii) students are given a grade for soft skills aptitude	○	○	○	○
iv) a general good attitude toward work and others improves grade	○	○	○	○
v) critical thinking is rewarded and improves grade	○	○	○	○
vi) motivation and pride in a job well done is referred to when deciding final grade	○	○	○	○
vii) honesty and integrity are referred to when deciding final grade	○	○	○	○
viii) student effort is referred to when deciding final grade	○	○	○	○

What characteristics, if any, do you feel are missing?

*** 14.**
For the category 'student assessment includes soft skills aptitude' indicate if you would like to keep each characteristic in the artifact.

	Include	Exclude	Undecided
i) students are given soft skills evaluation reports as part of their student records	○	○	○
ii) soft skills are considered a "course" and is graded like all other courses/classes	○	○	○
iii) students are given a grade for soft skills aptitude	○	○	○
iv) a general good attitude toward work and others improves grade	○	○	○
v) critical thinking is rewarded and improves grade	○	○	○
vi) motivation and pride in a job well done is referred to when deciding final grade	○	○	○
vii) honesty and integrity are referred to when deciding final grade	○	○	○
viii) student effort is referred to when deciding final grade	○	○	○

* 15.
Each catergory of the artifact includes various characteristics. For the category 'assignments and projects include soft skills aptitude' indicate how effective each characteristic would be for soft skills education.

	Not effective	Mildly effective	Moderately effective	Very effective
i) assignments/projects about soft skills are incorporated into the curriculum	○	○	○	○
ii) soft skills assignments/projects are graded on content	○	○	○	○
iii) soft skills assignments/projects are graded based on the soft skills used when completing the assignment (eg. teamwork)	○	○	○	○
iv) assignments not completed on time are penalized	○	○	○	○
v) ability to follow instructions is assessed	○	○	○	○
vi) motivation to go beyond basic expectations is rewarded	○	○	○	○
vii) strong communication/writing skills are rewarded	○	○	○	○
viii) ability to showcase improvement over time is rewarded	○	○	○	○

What characteristics, if any, do you feel are missing?

*** 16.**
For the category '<u>assignments and projects include soft skills aptitude</u>' indicate if you would like to keep each characteristic in the artifact.

	Include	Exclude	Undecided
i) assignments/projects about soft skills are incorporated into the curriculum	○	○	○
ii) soft skills assignments/projects are graded on content	○	○	○
iii) soft skills assignments/projects are graded based on the soft skills used when completing the assignment (eg. teamwork)	○	○	○
iv) assignments not completed on time are penalized	○	○	○
v) ability to follow instructions is assessed	○	○	○
vi) motivation to go beyond basic expectations is rewarded	○	○	○
vii) strong communication/writing skills are rewarded	○	○	○
viii) ability to showcase improvement over time is rewarded	○	○	○

* 17.
Each catergory of the artifact includes various characteristics. For the category 'teacher models soft skills in his/her practice in order that students see and mimic this behavior' indicate how effective each characteristic would be for soft skills education.

	Not effective	Mildly effective	Moderately effective	Very effective
i) teacher displays soft skills AND discusses them so that students identify and witness the skills in action	○	○	○	○
ii) teacher explains connections between a soft skill he/she displays and its importance in the workplace	○	○	○	○
iii) teacher works to be a positive and consistent role model for soft skills in the workplace	○	○	○	○
iv) students are encouraged to examine teacher behavior to identify various soft skill being displayed	○	○	○	○
v) teacher speaks with students one-on-one about the soft skills they begin to mimic to encourage further adoption	○	○	○	○

What characteristics, if any, do you feel are missing?

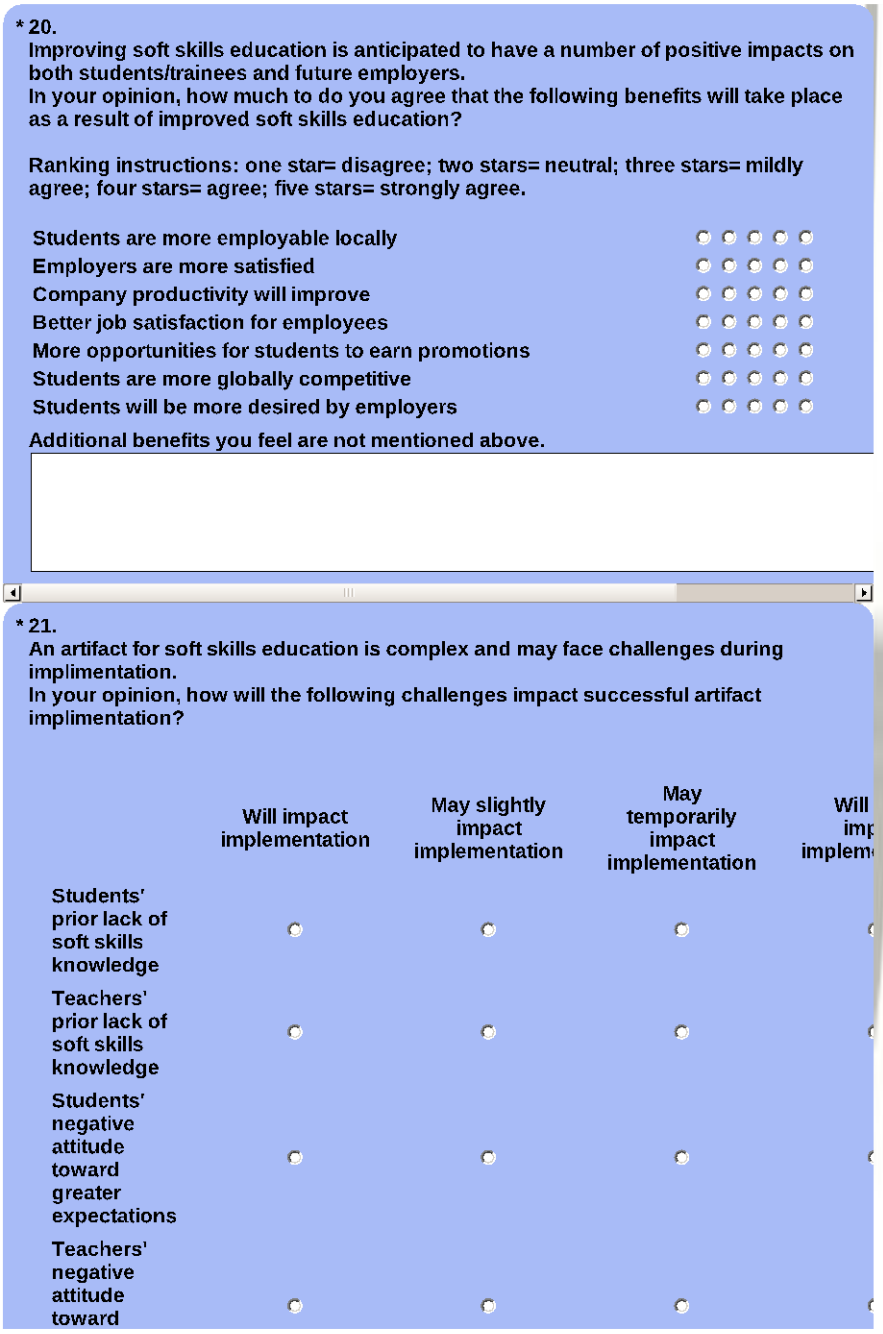
* 18.
For the category 'teacher models soft skills in his/her practice in order that students see and mimic this behavior' indicate if you would like to keep each characteristic in the artifact.

	Include	Exclude	Undecided
i) teacher displays soft skills AND discusses them so that students identify and witness the skills in action	○	○	○
ii) teacher explains connections between a soft skill he/she displays and its importance in the workplace	○	○	○
iii) teacher works to be a positive and consistent role model for soft skills in the workplace	○	○	○
iv) students are encouraged to examine teacher behavior to identify various soft skill being displayed	○	○	○
v) teacher speaks with students one-on-one about the soft skills they begin to mimic to encourage further adoption	○	○	○

Opinions about the Artifact

* 19.
In your opinion, what is the best strategy for soft skills education in Saudization vocational education and training (VET)?

- ○ Do not conduct soft skills education
- ○ Only use traditional teaching methods for soft skills education
- ○ Only use new teaching methods for soft skills education
- ○ Use an equal combination of traditional and new teaching methods
- ○ Use both traditional and new teaching methods, but focus more on traditional metho
- ○ Use both traditional and new teaching methods, but focus more on new methods



* 20.
Improving soft skills education is anticipated to have a number of positive impacts on both students/trainees and future employers.
In your opinion, how much to do you agree that the following benefits will take place as a result of improved soft skills education?

Ranking instructions: one star= disagree; two stars= neutral; three stars= mildly agree; four stars= agree; five stars= strongly agree.

Students are more employable locally	○ ○ ○ ○ ○
Employers are more satisfied	○ ○ ○ ○ ○
Company productivity will improve	○ ○ ○ ○ ○
Better job satisfaction for employees	○ ○ ○ ○ ○
More opportunities for students to earn promotions	○ ○ ○ ○ ○
Students are more globally competitive	○ ○ ○ ○ ○
Students will be more desired by employers	○ ○ ○ ○ ○

Additional benefits you feel are not mentioned above.

* 21.
An artifact for soft skills education is complex and may face challenges during implimentation.
In your opinion, how will the following challenges impact successful artifact implimentation?

	Will impact implementation	May slightly impact implementation	May temporarily impact implementation	Will imp implem
Students' prior lack of soft skills knowledge	○	○	○	○
Teachers' prior lack of soft skills knowledge	○	○	○	○
Students' negative attitude toward greater expectations	○	○	○	○
Teachers' negative attitude toward	○	○	○	○

greater expectations				
Cultural resistance to the importance of soft skills				
Cultural resistance to acquiring improved soft skills				
Feasibility of reform to teaching standards				
Feasibility of reform to student assessment				
Resistance to educational change until proven results or research are shown				
Resistance to educational change in general				

Additional challenges you feel are not mentioned above.

22.

If you would like to make any comments about the proposed soft skills teaching artifact please use the space provided below.

Follow-up Questions

*** 23.**
Has participating in this survey made you more aware of soft skills in the workplace?

- Yes
- No

*** 24.**
Has participating in this survey made you rethink the value of soft skills?

- Yes
- No
- Always thought soft skills were important

*** 25.**
Has particpating in this survey made you rethink your own soft skills competency?

- Yes
- No

Comments (optional)

*** 26.**
Has particpating in this survey made you want to improve your soft skills competency?

- Yes
- No
- I am already confident with my soft skills competency

*** 27.**
Would you agree to take part in a brief follow-up telephone or video interview with the survey researcher?

- Yes
- No

Your responses are important so please take your time and answer all questions thoughtfully. You can always save your progress and return to complete the survey at a later time before the completion deadline. Thank you.

Thank you for your participation. If you have further questions, or would like to speak with someone about the survey you just took, please contact Dayna Knot: dakn3275@student.su.se.

Appendix 2: Initial Saudization Soft Skills Artifact (before refinement)

Categories		Characteristics	
C1	Environment: classroom environment mimics work environment	C1-a	constant tardiness is met with disciplinary action
		C1-b	poor attendance is met with disciplinary action
		C1-c	rules and regulations must be obeyed
		C1-d	workplace is respected and well maintained
		C1-e	professional behavior and conduct is expected
C2	Relationship: teacher-student relationship mimics a boss-employee relationship	C2-a	teacher's authority is ultimate and respected
		C2-b	teacher meets with students to discuss performance
		C2-c	teacher is a role model for good practice and work ethic
		C2-d	teacher punishes or rewards students based on performance
		C2-e	reward is based on merit and performance
C3	Assessment: student assessment includes soft skills aptitude	C3-a	students are given soft skills evaluation reports as part of their student records
		C3-b	soft skills are considered a "course" and is graded like all other courses/classes
		C3-c	students are given a grade for soft skills aptitude
		C3-d	a general good attitude toward work and others improves grade
		C3-e	critical thinking is rewarded and improves grade
		C3-f	motivation and pride in a job well done is referred to when deciding final grade
		C3-g	honesty and integrity are referred to when deciding final grade
		C3-h	student effort is referred to when deciding final grade
C4	Components: assignments and projects include soft skills components	C4-a	assignments/projects about soft skills are incorporated into the curriculum
		C4-b	soft skills assignments/projects are graded on content
		C4-c	soft skills assignments/projects are graded based on the soft skills used when completing the assignment (e.g., teamwork)
		C4-d	assignments not competed on time are penalized
		C4-e	ability to follow instructions is assessed
		C4-f	motivation to go beyond basic expectations is rewarded
		C4-g	strong communication/writing skills are rewarded
		C4-h	ability to showcase improvement over time is rewarded
C5	Modeling: teacher models soft skills in his/her practice in order that students see and mimic this behavior	C5-a	teacher displays soft skills AND discusses them so that students identify and witness the skills in action
		C5-b	teacher explains connections between a soft skill he/she displays and its importance in the workplace
		C5-c	teacher works to be a positive and consistent role model for soft skills in the workplace
		C5-d	students are encouraged to examine teacher behavior to identify various soft skills being displayed
		C5-e	teacher speaks with students one-on-one about the soft skills they begin to mimic to encourage further adoption

Appendix 3: Effectiveness Ratings for Artifact Characteristics

Effectiveness Ratings for Artifact Characteristics

Char.	Rating	Char.	Rating	Char.	Rating	Char.	Rating	Char.	Rating
C1-a	0.50	C2-a	0.47	C3-a	0.78	C4-a	0.78	C5-a	0.89
C1-b	0.50	C2-b	0.92	C3-b	0.81	C4-b	0.72	C5-b	0.89
C1-c	0.69	C2-c	0.94	C3-c	0.89	C4-c	0.86	C5-c	0.94
C1-d	0.78	C2-d	0.67	C3-d	0.78	C4-d	0.53	C5-d	0.81
C1-e	0.97	C2-e	0.67	C3-e	0.72	C4-e	0.58	C5-e	0.89
				C3-f	0.69	C4-f	0.81		
				C3-g	0.81	C4-g	0.89		
				C3-h	0.75	C4-h	0.89		

Appendix 4: Artifact Refinement Measures (Basic and Adjusted)

		Include	Exclude	Un-decided	Adjusted Maintenance Score	Basic Maintenance Score
C1	C1-a	7	1	**4**	0.88	*0.58*
	C1-b	9	1	2	0.90	*0.75*
	C1-c	6	**4**	2	0.60	**0.50**
	C1-d	9	0	**3**	1.00	*0.75*
	C1-e	11	0	1	1.00	0.92
Average scores					0.88	0.70

		Include	Exclude	Un-decided	Adjusted Maintenance Score	Basic Maintenance Score
C2	C2-a	6	**3**	**3**	0.67	**0.50**
	C2-b	12	0	0	1.00	1.00
	C2-c	11	1	0	0.92	0.92
	C2-d	8	**3**	1	0.73	*0.67*
	C2-e	10	1	1	0.91	0.83
Average scores					0.84	0.78

		Include	Exclude	Un-decided	Adjusted Maintenance Score	Basic Maintenance Score
C3	C3-a	11	1	0	0.92	0.92
	C3-b	9	2	1	0.82	*0.75*
	C3-c	11	1	0	0.92	0.92
	C3-d	10	0	2	1.00	0.83
	C3-e	8	1	**3**	0.89	*0.67*
	C3-f	8	1	**3**	0.89	*0.67*
	C3-g	9	1	2	0.90	*0.75*
	C3-h	9	1	2	0.90	*0.75*
Average scores					0.90	0.78

Continued on next page.

		Include	Exclude	Un-decided	Adjusted Maintenance Score	Basic Maintenance Score
C4	C4-a	10	1	1	0.91	0.83
	C4-b	11	1	0	0.92	0.92
	C4-c	8	**3**	1	0.73	*0.67*
	C4-d	7	2	**3**	0.78	*0.58*
	C4-e	11	1	0	0.92	0.92
	C4-f	10	0	2	1.00	0.83
	C4-g	10	1	1	0.91	0.83
	C4-h	12	0	0	1.00	1.00
Average scores					0.89	0.82

		Include	Exclude	Undecided	Adjusted Maintenance Score	Basic Maintenance Score
C5	C5-a	12	0	0	1.00	1.00
	C5-b	12	0	0	1.00	1.00
	C5-c	11	1	0	0.92	0.92
	C5-d	9	3	0	0.75	*0.75*
	C5-e	11	0	1	1.00	0.92
Average scores					0.93	0.92

Appendix 5: Refined Artifact (after respondent feedback)

Categories		Characteristics	
C1	Environment: classroom environment mimics work environment	**C1-a**	constant tardiness is met with disciplinary action
		C1-b	poor attendance is met with disciplinary action
		C1-c	rules and regulations must be obeyed
		C1-d	workplace is respected and well maintained
		C1-e	professional behavior and conduct is expected
C2	Relationship: teacher-student relationship mimics a boss-employee relationship	**C2-a**	teacher's authority is ultimate and respected
		C2-b	teacher meets with students to discuss performance
		C2-c	teacher is a role model for good practice and work ethic
		C2-d	teacher punishes or rewards students based on performance
		C2-e	reward is based on merit and performance
C3	Assessment: student assessment includes soft skills aptitude	C3-a	students are given soft skills evaluation reports as part of their student records
		C3-b	soft skills are considered a "course" and is graded like all other courses/classes
		C3-c	students are given a grade for soft skills aptitude
		C3-d	a general good attitude toward work and others improves grade
		C3-e	critical thinking is rewarded and improves grade
		C3-f	motivation and pride in a job well done is referred to when deciding final grade
		C3-g	honesty and integrity are referred to when deciding final grade
		C3-h	student effort is referred to when deciding final grade
C4	Components: assignments and projects include soft skills components	C4-a	assignments/projects about soft skills are incorporated into the curriculum
		C4-b	soft skills assignments/projects are graded on content
		C4-c	soft skills assignments/projects are graded based on the soft skills used when completing the assignment (e.g., teamwork)
		C4-d	assignments not competed on time are penalized
		C4-e	ability to follow instructions is assessed
		C4-f	motivation to go beyond basic expectations is rewarded
		C4-g	strong communication/writing skills are rewarded
		C4-h	ability to showcase improvement over time is rewarded
C5	Modeling: teacher models soft skills in his/her practice in order that students see and mimic this behavior	C5-a	teacher displays soft skills AND discusses them so that students identify and witness the skills in action
		C5-b	teacher explains connections between a soft skill he/she displays and its importance in the workplace
		C5-c	teacher works to be a positive and consistent role model for soft skills in the workplace
		C5-d	students are encouraged to examine teacher behavior to identify various soft skills being displayed
		C5-e	teacher speaks with students one-on-one about the soft skills they begin to mimic to encourage further adoption

Yellow (**bold**) = Excluded; Blue (*Italic*) = Future refinement; Green (none) = Maintained

Appendix 6: Research Participant Information (pseudonyms only)

Number	Participant Pseudonym	Expertise Group	Expertise Code	Age	Gender	Nationality
1	OMAR	Admin.	3	27	M	Saudi
2	MONA	Admin.	3	29	F	Saudi
3	HABIB	Govt.	4	33	M	Saudi
4	NOUR	Fr. Student	1	29	F	Saudi
5	MAHA	Fr. Student	1	30	F	Saudi
6	AMIRA	Fr. Student	1	28	F	Saudi
7	FATIMAH	Fr. Student	1	26	F	Saudi
8	KHALID	Admin.	3	29	M	Saudi
9	HAIFA	Fr. Student	1	27	F	Saudi
10	MOHAMMED	Instructor	2	44	M	Syrian
11	JUDY	Instructor	2	50	F	Canadian
12	YASMINE	Admin.	3	27	F	Saudi

Appendix 7: Email Invitation for Study Participation

Dear Survey Participant,

My name is Dayna Dagmar Knotova and I am affiliated with Stockholm University's Institute of International Education (IIE) specialized in research on vocational education in the Gulf states of Saudi Arabia, Qatar, and the United Arab Emirates. I have spent the last three years both working in Saudi Arabia on a successful Saudization program for the King Faisal Specialist Hospital & Research Centre (KFSH&RC) and furthering my research at Stockholm University in the hopes of conducting a long-term study of soft skills education in the Gulf region as a whole.

I was provided your contact information by a colleague at the Human Resources Development Fund (HRDF) working with me to help improve the validity and relevance of my current research focused on improving soft skills vocational education and training (VET). I know you have been contacted before and you were gracious and kind to agree to participate in completing a survey. I truly hope you are still able to assist.

I am in need of expert opinions about one possible approach to soft skills education that is geared at developing a more successful educational and training environment and curriculum. I am seeking your feedback and opinions about this proposed teaching artifact. Many other participants have worked hard to help me design this artifact and now it is up to Saudi professionals such as you to help improve it.

To ensure confidentiality, your identity will be kept anonymous by combining survey responses numerically with previous survey participants' responses and any aspect of your identity will never be used in any future publications.

I would like to thank you in advance for your participation; your feedback will be greatly valuable and appreciated. The survey is detailed but not overly demanding and should only take about 15-20 minutes of your time.

Please refer to the attachments for further information about the survey.

Click here to being the survey or copy and paste the link below in your web browser.

http://eSurv.org?u=softskills_artefact

Thank you for your time and I look forward to your expert opinions.

I hope you find the survey enjoyable and inspiring.

Best regards,

Dayna Dagmar Knotova
Stockholm University
Institute of International Education
dakn3275@student.su.se

Appendix 8: Study Poster with QR Code

Soft Skills in Saudization Vocational Education and Training (VET) Programs

Designing a Soft Skills Teaching Artifact

Soft skills are becoming increasingly important in the 21st century workplace and are determining factors for employee success and company productivity. Many VET programs do not currently teach students how to effectively adopt soft skills and implement them in the workplace. Saudization education and training programs also face this challenge.

It is the intension of this survey to gather vital information and feedback on a proposed teaching artifact geared at enhancing soft skills education for improved Saudization success.

Survey closing date: **21 March 2014**

Register to participate at dakn3275@student.su.se

Dayna Dagmar Knot
Stockholm University
Institute of International Education (IIE)

Appendix 9: Study Brochure

Saudization and Soft Skills Education

16 March 2014 — Researcher: Dayna Dagmar Knot

The [Saudi] government has been making every effort to improve the efficiency of Saudi manpower by offering them the necessary skills and coaching them to develop the right mindset to take up jobs.

--Labor Minister Adel Fakeih, 2012--

Soft Skills are Important for Saudization Efforts

"Saudi job seekers should first learn the lesson of work ethics, and then the desired Saudization efforts will bear fruit in the due course of time. However, to make this happen the concerned human resources departments, educational specialists, municipal authorities and recruitment agencies in the public and private sectors must incorporate and develop a strategy."

Dr. Sharif Elabdelwahab
Chief
King Fahad National Employment Center

Introduction to the study:

Welcome and thank you for participating in this study aimed at improving soft skills education by incorporating these skills into everyday teaching practices and the learning environment.

The purpose of this study is to obtain valuable feedback from persons involved in Saudization vocational education and training (VET) in order to design and refine a proposed series of methods and strategies geared at soft skills mimetic learning. These methods and strategies are referred to as the proposed artifact *teacher as exemplar*.

The main objectives of this artifact are:

- to make soft skills a visible and important aspect of VET
- to have soft skills displayed by instructors in everyday practice and conduct with students
- to have students recognize and mimic the instructor's behavior
- to include lessons and projects that evaluate soft skills aptitude
- to involve a soft skills assessment tool (e.g. a graded course) in the curriculum

Your expert opinion will help to ensure the best possible artifact is developed to later apply to research trials in various VET programs in the Gulf region.

 1

Survey Instructions:

When answering the survey questions please be sure to read the questions and instructions carefully. This is a detailed survey so if you feel you cannot complete the entire questionnaire in one attempt, finish the page you are on (your progress is saved after you complete each page) and you may continue another time so long as you **complete the survey by 21 March 2014**.

The survey, *A Soft Skills Teaching Artifact*, is divided into six (6) pages:

1. Respondent Information*
2. Soft Skills in the Workplace
3. The Artifact: 'Teacher as Exemplar'
4. Evaluating Characteristics of Artifact Categories**
5. Opinions about the Artifact
6. Follow-up Questions

Some questions have space provided for written responses. Please, if possible, try your best to include any comments you feel will help the researcher understand your particular answers.

At the end of page five (5), there is space provided for you to write anything you feel is relevant to include for the researcher to better refine the teaching artifact being developed in this study.

* all personal information will be kept completely anonymous.
** this is a vital aspect of the survey so please consider carefully the individual characteristics of each of the five (5) categories of the artifact

Survey Terminology:

Soft skills- personal attributes and skills that enhance occupational interactions and performance. One's general attitude towards work, tasks, workplace and coworkers. Also referred to as *21st century skills*. E.g., ability to deal with people politely.

Hard skills- occupational competencies and skills required to perform a particular job. E.g., ability to operate machinery.

Mimetic learning- attempting to pattern one's skills, knowledge and behavior after seeing, hearing, feeling, speaking and acting similar to a standard or ideal model. E.g., children learning good manners.

Artifact- an innovative tool, model or strategy designed to address a particular problem. In educational design research an artifact is refined repeatedly to improve its final performance.

If you have any questions about the survey you completed, or the research project related to it, please feel free to contact:

Dayna Dagmar Knot
Stockholm University
dakn3275@student.su.se

Institute of International Education (IIE)

www.edu.su.se/english/institute-of-international-education