# **Research Article**

# Female Mentees' Perspectives of a Mentoring program in the Saudi context

Nadia Shukri<sup>1</sup>, Amani Abu Leil<sup>2</sup>

<sup>1</sup>English Language Institute, King Abdul Aziz University <sup>21</sup>English Language Institute, King Abdul Aziz University

**Abstract**: Induction and mentoring of novice teachers has gained considerable worldwide attention. In the Saudi context, however, there is limited literature. The present study investigated EFL female mentees' perceptions towards the mentoring program and the challenges they experienced. Mentoring as an area of educational research has been recognized by researchers (such as Wendell, 2003; Delaney, 2012; Nguyen, 2013) who propose that mentoring can provide sufficient support for new teachers and generally improve the overall effectiveness of the teaching/learning process. Thus, the purpose of the study is to identify mentees' points of view about the mentoring program, the challenges they face and the recommendations they propose. More specifically, this investigation was carried out in an attempt to promote both professional and teacher development at the English Language Institute in order to meet international standards of quality teaching. A case study was adopted; 8 mentees were specifically selected. The instrument used to collect data was a questionnaire based on two parts and semi-structured interviews. The first part of the questionnaire consists of 5-point likert scale items and the second part includes open–ended questions. Data analysis was presented in terms of frequency and percentages, and 8 semi-structured interviews were analysed manually. The research presents preliminary suggestions for making the program more effective for future groups of novice teachers as well as raised awareness of important issues to consider for future studies.

### Keywords: Mentoring, mentees, perspectives, Saudi context.

### I. INTRODUCTION

For any teaching institution to work successfully and to ensure optimum productivity, there ought to be an element of collegialty among teachers, both novice and experienced. The purpose of the mentoring program is to provide support for novice teachers via their engagment with experienced teachers. Additionally, the goal is to create a space for peer support among both novice and experienced teachers so that they benefit from each other. According to Healy and Welchert (1990), mentoring is a relationship that takes place in a work environment between an experienced and a beginner with the intention of develoment. Moreover, Parsloe (1999) suggests that mentoring aims to support colleagues to manage their own professional development so that they may enhance their skills, performance and gain competency.

There has been an increasing need for establishing the Mentoring Program at the English Language Institute (ELI) due to widespread feelings of uncertainty that new faculty members report experiencing during their first few weeks at the ELI. In light of this, the Mentoring Program at the Women's Main Campus aims to provide mentoring support for new recruits in order to make their transition into the ELI setting successful. Moreover, the program offers professional support to both new and experienced ELI faculty members who need assistance in order to develop their skills and enhance their classroom performance.

### Saudi context and background of the study

(ELI), King Abdulaziz University is designed to provide support for new teachers in order to enhance the process of settling in to a new professional environment. It creates an opportunity for new faculty members to learn about the English Language Institute (ELI) as an educational setting and its administrative policies. Moreover, the program provides guidance and support to ELI faculty members who need assistance to develop workable solutions to classroom problems. The purpose of the program is to fully maximize faculty members' professional growth. The Mentoring Program was first established in September 2014 and continues to operate at the present time. Before the launch of the Mentoring Program, based on past experience there is a need for the mentoring program to support newly recruited staff to embrace the new academic culture of the English Language Institute. As a previous head of the professional development unit I have came across new teachers who are in need of support in terms of inhouse training and also collegial support. Thus the incentive to create a Mentoring program for faculty is based on the needs of the faculty. It is significant to note that these faculty members teach foundation year students and the English currciulum is an intensive one based on 18 teaching hours a week for students overa period of four modules in a year.

As a result, about 16 faculty members were trained in a British Council training course entitled 'An Overview of Mentoring Skills' in January 2014 in order to be readily equipped to mentor new teachers in the following semester. Documents

The Mentoring Program at the English language Institute

were then developed to be used with program participants, including forms to record meetings between mentors and mentees. In addition to these, a needs analysis questionniare and a professional development plan are among the documents required to be filed out by every mentee in the program. The program also incorprates in-person group training sessions on various aspects of language teaching, conducted in collaboration with the Professional Development Committee, on an as-needed basis. Furthermore, socially and culturally specific presentations are conducted on Saudi culture and customs, as well as information about specific policies at the ELI. Open discussions allow for mentees to ask questions and voice any concerns they may have.

Before the offical launch of the Mentoring Program, an email was sent to all ELI faculty providing a list of experienced teachers, along with their specific areas of expertise. The goal of this email was to raise awareness among staff about the importance of mentoring and the availability of resources to any faculty members who needed assistance. Five faculy members responded to this initial email.

In September of 2014, the Mentoring Program launched. The team consisted of a supervisor, a coordinator and a team of eight mentors. Mentors were selected based on their completion of the month-long British Council training course entitied 'An Overview of Mentoring Skills' and their number of years of EFL teaching experience.

An easy way to comply with the conference paper formatting requirements is to use this document as a template and simply type your text into it. Wherever Times is specified, Times Roman or Times New Roman may be used.

# **Goals of the Mentoring Program in ELI**

The Mentoring Program aims to develop a collegial atmosphere for new faculty in order to make their transition into the ELI successful. It provides pedagogical support for new faculty who need assistance with certain areas of their teaching practice in order to improve their performance and increase students' classroom performance. Mentors in the program agreed to be available to their mentees, to consult and ask questions whether in person, by phone, or by email. Moreover, mentors could, if they wished, allow mentee teachers to observe their classes. Mentees could also request a mentor to observe their perfomance in class. Mentors also provide practical ideas and suggestions to address challenges in the classroom as well as share materials and resources that may be be helpful for mentee teachers to enhance their performance. Mentee teachers are expected to take initiative and contact mentors for guidance and indicate to their mentor the specific problems or area of struggle which she would like the mentoring meetings to focus on. To ensure a healthy mentoring relationship, all interactions with mentors, including any observations of teachers conducted by mentors or mentees are completely confidential and not reported to academic coordinators or Academic Affairs.

# Statement of the Problem

In order for any educational institution to run successfully, competent teachers are essential. In the process of getting accreditation with the CEA (Commission on English Language Accreditation), a core standard is to have a qualified faculty. The ELI itself has a similar goal, as outlined in the institute's mission statement:

The Mission of the English Language Institute (ELI) is to provide intensive instruction of English as a foreign language, delivered by qualified instructors using an internationallyoriented curriculum,to Foundation Year students in order to enhance their English language skills and facilitate their academic progress

Faculty members need to be constantly engaged in training activities that enhance their knowledge and productivity in order for them to successfully act as facilitators of knowledge for their students. Mentoring was introduced in the English Language Institute for the purpose of spreading a spirit of collegiality so that new teachers feel welcomed and are able to acclimatize to the academic culture of the institute. The objective of mentoring is for experienced teachers to provide support for junior staff and anyone else who is need of support and to provide an positive atmosphere for sharing and learning.

The research attempts to answer the following research questions:

- 1. What are the benefits of mentoring in terms of ensuring that transition to the new setting is successful?
- 2. What are the barriers or challenges to mentoring as perceived by new mentees?
- **3.** What suggestions do mentees propose after experiencing the mentoring program?

# **II. Literature Review**

Mentoring is considered a way to implement positive change into educational programs (Wendell, 2003). The field of EFL education, it implies encouraging teachers to meet the criteria of national standards for foreign language learning in the 21st century and thus enhancing their professional development (Delaney, 2012). It is important to note that mentoring is of various types. First, there is mentoring for new teachers who are newly appointed at the workplace (Ingersoll and Kralik, 2004, Smith and Ingersoll, 2004; Hoa, 2008; Guyen, 2013); (Kanan & Baker, 2002; Kanuka, 2005; Qablan, Khasawneh & Momani, 2009). Second there is mentoring for the student teachers that takes place as some kind of preservice training in a new workplace (Torrance, 1984; Daresh, 1995; Hudson, Nguyen, & Hudson (2009); Delaney, 2012). Third, there is the mentoring for novice teachers who need assistance from those of who are experienced in the workplace (Smith and Ingersoll, 2005; Hoa, 2008; Arnold, 2006). Fourth, there is also a new mentoring method called peer mentoring where peers support each other (Nguyen, 2013). However, this study will focus on mentoring for newly appointed EFL teachers in the English Language institute. Peer mentoring is practised where less experienced teachers seek assistance from those who are more

experienced. Similarly, mentees receive the support and encouragement they need.

Goodnough, Osmond, Dibbon, Glassman, and Stevens (2009) reported that when pre-service teachers were allocated to work with other peers, they were given emotional support by sharing their problems Other studies emphasized the role of peers in reducing stress and isolation, as working with peers in a supportive atmosphere provided emotional support (Le Cornu, 2005; Goodnough, et al. 2009). Nguyen's study (2013) found the presence of psychological support came at a higher level in the formally peer-mentored group than in the nonformally peer mentored group and emphasized the psychological support pre-service teachers receive from their peers in order to overcome the challenges of classroom teaching in the Vietnamese context

## 2.1. Definition of Mentoring

Mentoring, is a kind of personal and professional relationship which involves an experienced practitioner supporting a less experienced one (Arnold, 2006). Often the less experienced one is new to the job, organization, or profession (Butcher, 2002).

Mentoring is practised in many ways in different contexts. The mentoring reported here involves experienced English language teachers mentoring newly qualified teachers (Arnold, 2006). Arnold (2006) describes a framework for assessing mentoring quality in a large military EFL school in the Middle East. Data showed that there is a need for quality time for mentors and mentee pairs. It raises several issues such as the quality and type of mentor training, the complexity of the mentor's role and the need for support of mentors from within the school. Furthermore, mentoring as it develops leaders in institutions, promotes faculty development, retention and develops collegiality in any academic venue (Al-Qahtani, 2015).

According to Nicholls (2013) mentors provide support and encouragement to their menees that aims at increasing their opportunties for personal development and professional growth. Thus, mentoring creates an environment conducive for (p. 139). Mentoring plays a major role in creating professional learning communities where it is possible for both mentor and mentee to share teaching techniques and support one another in order to grow professionally.

Mentoring programs can also be referred to as teacher induction programs as noted by Smith and Ingersoll (2004). They have noted that teacher induction programs have a number of varied purposes. Teacher induction programs can include workshops, support systems, orientation seminars, and specifically mentoring partnerships. Thus, mentoring is defined as the personal guidance provided, usually by experienced teachers, to beginning teachers in schools. During the past two decades, teacher mentoring programs have become the dominant form of teacher induction (Fiedler & Haselkom, 1999). Indeed, the two terms are often used interchangeably today.

# 2.2. Mentoring New Teachers

Academic mentoring has been signified as a critical process by which both student teachers and novice teachers start to teach and how to apply teaching theory to practice (Torrance, 1984; Daresh, 1995). They stressed the importance of mentoring novice teachers to guide and to familiarize them with effective teaching practice. More importantly, formal mentoring programs in education have been implemented and discussed extensively in countries such as USA, UK, and Australia (Nguyen, 2013). This educational research has emphasized the importance of mentoring and providing additional support to either pre-service or novice teachers, as well as the impact of mentoring on the performance of teachers at the beginning of their teaching careers (Kanan & Baker, 2002; Qablan, Khasawneh & Momani, 2009). Rowley (1999) emphasizes that training programs, which engage new mentors in reflecting upon their profession and preparing them to be trained mentors (cited in Al- Rabai 2014, p. 292).

Though Mentoring is an asset to educational programs, they are also challenges. As mentioned in (Al-Rabai, 2014) there are common problems in Jordan, Baharain, Qatar, and Saudi Arabia for the lack of training techniques, strategies and lack of experience and he encourages a training program for mentors to be professionally trained.

Al Qahtani (2015) pointed out that mentorship is an important educational tool, if it is implemented effectively. Al Qahtani's study (2015) looked closely at student mentorship at King Saud bin Abdulaziz University in Riyadh, Saudi Arabia. The case study was conducted with students enrolled in the Master of Health and Hospital Administration. The purpose of the study was to better undertand student's knowledge of and attitudes towards mentoring. Results showed that among 120 students at King Saud bin Abdulaziz University, 92% expressed a strong need for mentoring in their masters program and believe that it is a good platform to start with for the future development of mentorship programs. Al Qahtani further explains that because mentors share their experience with junior members, they also help to expand novice teachers' professional networks and thereby help mentees gain a sense of fulfillment in their academic environment. The master's students demonstrated a need for mentorship program which is relevant for future implementation. Both Al-Rabai (2014) and Al Qahtani (2015) point out that in terms of mentoring have yet to be established in the Arab world. Two other studies which focussed on mentoring in the Arab World specifically are Al-Kaabi (2005) and Ibrahim (2012). Al-Kaabi (2005) conducted his study in the United Arab Emirates. Graduates from 3 government teacher training programs (UAE university: Zayed University; Colleges of Technology; Emirates College for advanced Education) are recruited as teachers, assigned to schools, and expected to fulfill the same duties as veteran teachers.

He noted that novice teachers experienced stress, work overload, low esteem, lack of support, and often, and a high percentage of them eventually left teaching altogether. Based

on these results, Al-Kaabi recommended the establishment of mentoring programs and also meet the needs of the Emirati education system. Why is it necessary ? This is because the Emirati culture has a distinctive culture of its own. Ibrahim's study (2012) presented a culturally appropriate scheme for inducting and mentoring teachers in the UAE. A survey was distributed among 100 teachers to gather information on their perspectives on the induction program and mentoring at teritary level using the Delphi technique. The questions emphasized on a) who needs induction and how long; b) mentors; c) assessment of novices; d) pedagogical issues of mentoring and e) general issues. Open-ended questions focussed on whether a) the zone supervisor would be the best to mentor; b) the best criteria for mentor selection; c) training needs of mentors; d) assessment of novice teachers, and e) relationship between the induction program and license for teaching in the UAE. Results showed that

mentoring of novice teachers in the UAE ought to be under the supervision of national teaching standards of the UAE evidenced in the National Document (Wathiqa Watainiya). The use of these performance standards will provide shared professional vocabulary among mentors and novices and a tool for helping novices and assessing their development. By applying these performance standards, there will be mutual terminology between mentors and and novice teachers, and also guidelines for evaluating novice teachers (Ibrahim, 2012).

Despite the few studies that have been done, further research is needed to determine the degree and type of mentoring that support new EFL teachers, particularly at the teritary level in Saudi Arabia. Unfortunately, the literature on this subject is extremely limited, and even more so when applied to the Saudi context.

# 2.3 Mentoring and Professional Development and Learning

Not only does mentoring promote professional development, it encourages a culture of learning among faculty members (Nicholls, 2002). Delaney (2012) is an advocate of the importance of action research, class observation and case studies in enhancing both mentor and mentee pedagogical knowledge. Delaney (2012) conducted a seminal 10 year study looking at mentoring programs for pre-service teachers (student-teachers) and in-service graduate assistants working in university settings. The study looks at the importance of mentoring as an essential component to teacher retention.

Other studies have underscored the importance of reducing first year attrition byreducing first year attrition by providing beginning teachers with common planning time with others teachers and building a collaborative network among teachers in other schools (Ingersoll and Kralik, 2004; Smith and Ingersoll, 2004).

Furthermore, White and Mason (2003) state that mentoring helps them improve their skills of observation, communication and gives (mentees) time to form new techniques into their own teaching practice, which consequently elevates their professional development. In addition, mentoring enlightens teachers of the demands and challenges of the classroom environment (cited in Al-Rabai, 2014, p. 289). According to He (2010), the mentee or preservice teacher needs critical guidance and support in both pedagogical and content knowledge throughout the mentoring process

Mentor training is a major factor in the success of induction or mentorship programs, as posed by (Glassford & Salinitri, 2007). They add that mentor training should be comprised of the following: 1) identifying new teachers' needs; 2) selecting appropriate strategies; 3) utilising peer coaching methods; 4) communicative skills; 5) classroom observation skills; 6) problem-solving skills as well as ways of providing constructive feedback.

# 2.4 Mentoring Programs

Mentoring programs provide positive effects for the mentees. Kalbfleisch and Bach (1998) note that mentoring programs enhances professional learning, and the adjustment of new faculty into their professions. Boyle and Boice (1998) add that mentoring programs can aid in enhancing a friendly environment that encourages collegiality. Also, mentoring programs also serve as a means for making explicit the ethics, rules, and skills that are necessary for productive performance within the university culture (Nicholls, 2002). Making rules explicit for faculty is a significant step in preparing new faculty for their new roles (Kanuka, 2005).

## 2.5 Challenges of Mentoring

Some of the challenges faced by new teachers, especially those new to the EFL field are cultural shock, logistical issues, unfamiliar structural and organizational arrangements, different understanding of assessment, communication gaps and problems with teacher and student relations (Hutchinson and Jazzar, 2007). In order for these problems to be addressed, Al-Qahtani (2015) has noted that mentorship programs are not enough. Mentors working within these mentor programs need to be trained inorder to properly guide their mentees. Al-Rabai (2014) supports the idea that mentors need to be trained in order to be effective mentors. Al-Rabai (2014) raised the issue on the importance of time by allocating sufficient time for mentees. Institutional support is essential to making these goals a reality. As Hudson, Nguyen, and Hudson (2009) note, without administrative support and qualified mentors, mentoring programs simply cannot succeed..

### 3. Methodology

# 3.1. Case study

This study is based on a case study method. 8 participants were selected, primarily due to availability. Case studies are used to enhance understanding of an educational case, and is offically termed as an 'educational case study' according to Sturman (1994). In this case study, descriptive strategies (Yin, 2003) are applied to uncover beliefs, attitudes, structures and processes (Stake, 1995) within the mentoring program at the ELI. These strategies will help to identify teachers' perspectives on the newly developed mentoring program and

provide recommedations on how to enhance the program for future implementation.

# 3.2 Questionnaire and Semi-Structured Interviews

The questionnaire consisted of 20 questions; 16 of which were closed questions and 4 open-ended questions. The questionnaire was adapted from (Hoa, 2008) and was modified to more accurately address the research questions at hand. The questionnaire was first piloted by two TESOL experts and subsequently revised to enhance the face validity of the questionnaire. The 8 participants were requested to sign a consent form. All names would be anonymous and any information disclosed would be used solely for research purposes and for the development of the mentorship program.

Eight semi-structured interviews were also conducted with eight EFL instructors. The interviews were conducted in English. The in-person semi-structured interviews were analysed using thematic analysis (source). The 8 participants were questioned about the challenges they faced as mentees of the mentoring program and were asked to provide their suggestions on how to improve the program in the future. Each interview took approximately 15 minutes. All the interviews were audio recorded, and analysed manually for common themes using thematic analysis. For each interview, an MS-Word file was created with the pseudonyms of the interviewees, which are cited in the findings. The mentors were selected based on their years of experience and with extensive profsessional development background. Mainly they are Master degree graduates in the fields of Literature, Linguistics and TESOL.

# 3.3. Participants

The research study was conducted at the ELI at King Abdulaziz University's Women's Campus in Jeddah, Saudi Arabia. A total of 8 female teachers from different nationalities, with various teaching experiences, and from different age groups were selected to participate in the study (see Table 1). All teachers participated voluntarily in the study.

Nationality	Age Range	Number of
		teachers
Americans	29-40	3
British	32-36	2
Australian	30	1
Canadian	29	1
Polish	28	1

# 4. Findings and Discussion:

The following table describes the results gathered from the 16 closed- ended questions answered by mentees in the study questionaire. Tables 2-11 display teachers' responses regarding the benefits of mentoring:

Tables 2-11:Mentees' perspectives on the benefits ofmentoring

Table 2	Response	Number of	Percentage	
	Rating	Participants		
	Strongly	4	50%	
Mentoring	Agree	3	37.5%	
helps me feel	Agree	1	12.0%	
more adjusted	Neutral	-	0%	
in the new	Disagree	-	0%	
culture.	Strongly			
	Disagree			
Table 3	Response	Number of	Percentage	
	Rating	Participants	_	
Mentoring	Strongly	5	62.5%	
facilitates my	Agree	3	37.5%	
transition to	Agree	-	-	
the new	Neutral	-	-	
setting.	Disagree	_	-	
and a	Strongly			
	Disagree			
Table 4	Response	Number of	Percentage	
	Rating	Participants		
	Strongly	4	50%	
Mentoring	Agree	4	50%	
helps me gain	Agree		-	
more	Neutral		_	
knowledge	Disagree			
about the	Strongly		-	
academic	Disagree			
setting	Disagiee			
setting				
Table 5	Response	Number of	Percentage	
	Rating	Participants	rereentage	
	Strongly	4	50%	
Mentoring	Agree	4	50%	
0	Agree		-	
helns me				
helps me		_	_	
acquire more	Neutral	-	-	
acquire more knowledge	Neutral Disagree	-	-	
acquire more knowledge about the	Neutral Disagree Strongly	-	-	
acquire more knowledge about the administrative	Neutral Disagree	-	-	
acquire more knowledge about the	Neutral Disagree Strongly	-	-	
acquire more knowledge about the administrative	Neutral Disagree Strongly	-	-	
acquire more knowledge about the administrative system.	Neutral Disagree Strongly Disagree	- -	- - Percentage	
acquire more knowledge about the administrative	Neutral Disagree Strongly Disagree Response	- - Number of Participants	- - Percentage	
acquire more knowledge about the administrative system. Table 6	Neutral Disagree Strongly Disagree Response Rating	Participants		
acquire more knowledge about the administrative system. Table 6 Mentoring	Neutral Disagree Strongly Disagree Response Rating Strongly	Participants 2	25%	
acquire more knowledge about the administrative system. Table 6 Mentoring helps me gain	Neutral Disagree Strongly Disagree Response Rating Strongly Agree	Participants 2 2	25% 25%	
acquire more knowledge about the administrative system. Table 6 Mentoring helps me gain more teaching	Neutral Disagree Strongly Disagree Response Rating Strongly Agree Agree	Participants 2 2 2 2 2	25% 25% 25%	
acquire more knowledge about the administrative system. Table 6 Mentoring helps me gain	Neutral Disagree Strongly Disagree Response Rating Strongly Agree Agree Neutral	Participants 2 2	25% 25%	
acquire more knowledge about the administrative system. Table 6 Mentoring helps me gain more teaching	Neutral Disagree Strongly Disagree Response Rating Strongly Agree Agree Neutral Disagree	Participants 2 2 2 2 2	25% 25% 25%	
acquire more knowledge about the administrative system. Table 6 Mentoring helps me gain more teaching	Neutral Disagree Strongly Disagree Response Rating Strongly Agree Agree Neutral Disagree Strongly	Participants 2 2 2 2 2	25% 25% 25%	
acquire more knowledge about the administrative system. Table 6 Mentoring helps me gain more teaching	Neutral Disagree Strongly Disagree Response Rating Strongly Agree Agree Neutral Disagree	Participants 2 2 2 2 2	25% 25% 25%	
acquire more knowledge about the administrative system. Table 6 Mentoring helps me gain more teaching experience.	Neutral Disagree Strongly Disagree Response Rating Strongly Agree Agree Neutral Disagree Strongly Disagree	Participants 2 2 2 2 -	25% 25% 25% 25%	
acquire more knowledge about the administrative system. Table 6 Mentoring helps me gain more teaching	Neutral Disagree Strongly Disagree Response Rating Strongly Agree Agree Neutral Disagree Strongly Disagree	Participants 2 2 2 2 - Number of	25% 25% 25%	
acquire more knowledge about the administrative system. Table 6 Mentoring helps me gain more teaching experience. Table 7	Neutral Disagree Strongly Disagree Response Rating Strongly Agree Agree Neutral Disagree Strongly Disagree Response Rating	Participants 2 2 2 2 -	25% 25% 25% - Percentage	
acquire more knowledge about the administrative system. Table 6 Mentoring helps me gain more teaching experience. Table 7 Mentoring	Neutral Disagree Strongly Disagree Rating Strongly Agree Agree Neutral Disagree Strongly Disagree Rating Strongly	Participants 2 2 2 2 2 - Number of Participants -	25% 25% 25% - Percentage 25%	
acquire more knowledge about the administrative system. Table 6 Mentoring helps me gain more teaching experience. Table 7 Mentoring helps me to	Neutral Disagree Strongly Disagree Response Rating Strongly Agree Agree Neutral Disagree Strongly Disagree Response Rating Strongly Agree	Participants 2 2 2 2 2 - Number of Participants - 2	25% 25% 25% 25% - Percentage 25% 25%	
acquire more knowledge about the administrative system. Table 6 Mentoring helps me gain more teaching experience. Table 7 Mentoring	Neutral Disagree Strongly Disagree Rating Strongly Agree Agree Neutral Disagree Strongly Disagree Rating Strongly	Participants 2 2 2 2 2 - Number of Participants -	25% 25% 25% - Percentage 25%	

	Disagraa		
	Disagree	-	
	Strongly		
<b>T</b> 11 0	Disagree		D
Table 8	Response	Number of	Percentage
	Rating	Participants	
Mentoring	Strongly	3	37.5%
increases my	Agree	3	37.5%
job	Agree	2	25%
satisfaction	Neutral	-	-
	Disagree	-	-
	Strongly		
	Disagree		
<b>T</b> 11 0	D		
Table 9	Response	Number of	Percentage
	Rating	Participants	
Teachers'	Strongly	4	50%
perspective on	Agree	4	50%
the	Agree	-	-
relationship	Neutral	-	-
between	Disagree	-	-
mentoring and	Strongly		
increasing job	Disagree		
satisfaction			
Table 10	Response	Number of	Percentage
	Rating	Participants	
	Strongly	3	37.5%
Attending	Agree	5	72.5%
teaching	Agree	-	-
sessions assist	Neutral	-	-
me to innovate	Disagree	-	-
my teaching	Strongly		
techniques.	Disagree		
-	-		
Table 11	Response	Number of	Percentage
	Rating	Participants	
One to one	Strongly	3	37.5%
discussion	Agree	5	72.5%
with my	Agree	-	-
mentor helps	Neutral	-	-
me to resolve	Disagree	-	-
issues; such as	Strongly		
cultural issues	Disagree		
	0		
1		1	

As shown in Table 2, a large majority of the participants (87.5%) agreed with the notion that mentoring helped them feel 'more adjusted' in a new social and professional culture. Moreover, when asked whether they believed mentoring facilitated their transition into the new culture, all participants agreed, as shown in Table 3. Regarding mentees' opinions on the relationship between mentoring and gaining more knowledge about their academic work setting, the results, as illustrated in Table 4, show that all of the participants (100%) agreed that mentoring procedures helped them gain more knowledge about their academic work setting. Similarly, as shown in Table 5, all mentees (100%) agreed that there is a positive relationship between mentoring and acquiring more knowledge about the univeristy's administrative system. Regarding the relationship between mentoring and acquiring more teaching experience, 50% of respondents agreed that the mentoring procedures helped them gain more teaching experience while the other 50% responded between neutral and disagree (Table 6). Moreover, 75% of the teachers agreed that mentoring helped them improve their teaching (Table 7). Notably, 75% of the participants reported that mentoring actually increased their job satisfaction. In addition, as shown in Table 9, when asked about the relationship between observing experienced teachers and being more aware of the teaching expectations in their new work environment at the ELI, the majority of the participants (100%) agreed that seeing experienced teachers in action helped them gain insight into teaching circumstances at the ELI. All of the participants also agreed that attending teaching training sessions helped them improve their teaching practice (Table 10). Finally, 100% of the teachers believed that attending one to one discussion sessions with their mentors helped them resolve challenges; such as cultural misunderstandings (Table 11).

The second part of the questionnaire (Tables 12-16) relates to the challenges or barriers faced in the mentoring program.

.. . . \_ \_

mentoring program					
Table 12	Response	Number of	Percentage		
	Rating	Participants			
	~ ·		<b>FO</b>		

Tables 12 -16: Mentees' perspectives of the barriers in the						
mentoring program						
Table 12	Response	Number	of	Percentage	٦	

.

Table 12	Response	Number of	Percentage
	Rating	Participants	
Lack of	Strongly	4	50%
awareness of	Agree	2	25%
the	Agree	2	25%
Mentoring	Neutral	-	-
Program	Disagree	-	-
	Strongly		
	Disagree		
Table 13	Response	Number of	Percentage
	Rating	Participants	
Your	Strongly	-	-
mentors'	Agree	-	-
poor skills in	Agree	-	-
mentoring.	Neutral	-	-
	Disagree	8	100%
	Strongly		
	Disagree		
Table 14	Response	Number of	Percentage
	Rating	Participants	
	Strongly	-	-
Poor	Agree	-	-
planning of	Agree	1	12.5%
the	Neutral	2	25%
mentoring	Disagree	5	62.5%
process	Strongly		
	Disagree		
Table 15	Response	Number of	Percentage
process	Strongly Disagree	Number of	Percentage

	Rating	Participants	
Lack of	Strongly	-	-
access to	Agree	-	-
mentors.	Agree	3	37.5%
	Neutral	2	25%
	Disagree	3	37.5%
	Strongly		
	Disagree		
Table 16	Response	Number of	Percentage
	Rating	Participants	
Unsuccessful Strongly		-	-
matching of	Agree	-	-
mentors and	Agree	2	25%
mentees.	Neutral	-	-
	Disagree	6	75%
	Strongly		
	Disagree		

When asked about the effect of their lack of knowledge of the existence of the mentoring program, 75% of the participants agreed that their lack of awareness of the mentoring program was a significant barrier to the success of the program (Table 12).

However, regarding the mentees' perspectives on whether their mentors' inefficient mentoring skills had a negative effect on the mentoring process, 100% of the participants disagreed (in Table 13). Furthermore, as shown in Table 14, the majority of mentees (87.5%) disagreed with the idea that the mentoring program was poorly planned. 62.5% of teachers disagreed with the assumption that their mentors were not available to consult when needed (Table 15). Finally, as illustrated in Table 16, 75% of the respondents disagreed with the notion that they were unsuccessfully matched with their mentors.

At the end of the questionaire, participants were asked two open-ended questions: "Has the program met all your expectations? Please give a detailed answer"; and "What are the positive aspects of this mentoring program?" Analysis of these answers will be provided below.

Participants also engaged in semi-sructured interviews, which focussed on two primary questions: 1) How do you currently feel about the mentoring program? and 2) What are your suggestions for making this mentoring program more effective in the future?

Link back to your hypothesis and your RQ.

# 5. Discussion and Findings:

As shown in the questionaire results, the findings (as shown in Tables 2-16), participants provided largely positive feedback about their mentoring experience at the ELI. According to participant feedback, being paired with experienced mentors when new teachers first arrived at the ELI helped them acquire necessary insights about important cultural knowledge as well as the educational landscape of the ELI.

For example, analysis of the results from the semi-structured

interviews uncovered various themes.

# 5.1The positive aspects of the mentoring program

The first interview question asked mentees whether the program met their expectations. Participants T1 and T8 responded positively, stating that the program enhanced their confidence in their teaching methods as well as provided them with practical skills that could be used in their classrooms. Participants T2, T3 and T7 noted that they were satisfied with their mentors' assistance and found them helpful. Participant T7 explains, "It was so nice to feel like they could talk with somebody and have a trusting relationship with a mentor." Participant T6 also found that consulting with an experienced senior teacher was superb. To support this, Wendell (2003), Delaney (2012) and Nguyen (2013) have noted the positive change that affect teachers through mentoring as they get the opportunity to share problems with one another and experience collegiality.

When asked about the positive aspects of the mentoring program, Participant T1 noted the openness of the mentors, organization of the observation periods set up for the mentees, and the accessibility of the mentors. Participant T2 specifically pointed out the benefit of having someone they could trust to ask questions. Similarly, Participant T3 stated that the mentoring program gave her an opportunity to discuss important issues with her colleagues. Participant T5 found that the mentoring program to help new teachers in many ways, T6 found the mentors were helpful and the workshops provided were useful and important. Participant T7 added that she was able to form a positive relationship with a supportive, encouraging, and patient mentor instructor. Lastly, Participant T8 added that the mentoring program form each other.

Summary: The participants reacted positively towards mentoring since it provided them the chance to communicate with their peers regarding relevant issues. Simultaneously, they were able to learn from one another. Also, one participant noted about the beneficial provision of workshops.

# 5.2 Experienced and Novice teachers

Participants T4 and T5 joined at the beginning of the year just before the launch of the mentoring program thus didn't find the required assistance until late in the semester. The Mentoring program has eventually become effective later in the semester due to the hectic schedule of foundation year students.

Participant T2 explained that despite having a mentor, she continued to experience difficulties with administrative issues and noted that institutional support should be available, highlighting as Hudson, Nguyen, and Husdon (2009) do, the importance of administrative support for mentoring programs to run successfully. T4 agreed on the accessbility of the mentors in order to get questions answered pertaining administrative issues. The mentor was able to assist in answering questions regarding administrative issues.

The participants showed a need for someone to help them

regarding administrative issues.and there is a need for mentors to have some knowledge of administrative issues or at least guide them to the administrative sector in the institute.

## 5.3 Lack of awareness

Regarding the challenges of the program, Participant T1 noted that there was "a lack of awareness of the program initially. A sense of loss of where to to go or do." There is a need of more awareness and guidance for the new mentees regarding the mentoring program and its availability for faculty. Participant T5 expressed "due to the launch of the program at the same time of arrival, she felt she did not need it anymore." This is because the participant has just arrived in the institute and did not get the assistance required because the program is new and did not offer the immediate help required.

Early awareness and orientation of the program should be available for the mentees. There is the need of reinforcing of the relevance of the mentoring program via institute email and through announcements for coordinators and teachers.

Participant T4 stated: "The first week teachers are here, if they could meet their mentors at that time I think that would be helpful." Similarly, Participant T6 indicated that "Giving me a mentor much earlier when my arrival would have been helpful." Accomadating mentors early in the semester is essential in helping new teachers to adjust to the institution and also to provide prompt help for the mentees.

# 5.4 Lack of awareness of how curriculum is to be taught and institute's regulations

Participant T4 proposed the need for more advice on how to the required curriculum effectively and how to manage time in order to include more fun activities. This points to the need for more staff orientation and guidance on how to manage the new curriculum.

T4 notes: "You need to become familiar with lots of things in order to be effective in the classroom...to see how the curriculum is deployed in the classroom." The same particpant further said that: "I had a few conversations with my mentor and they were helpful and I was able to express my views and my concerns and she was understanding and kind. ..Its good to have a person like that to talk to. Participant T4 further adds..."There should be a unified say concerning absences and grading supplementary materials, salary/job/ apartment/ pick up.... Participant T5 adds that - "We didn't get any kind of ...you know the campus is huge and I am disoriented anyway." I need guidance where about the medical clinic, the location of the classroom, modular system, any questions regarding the text book." This participant in particular needed orientation of the campus and its facilities.

In a way there are mixed feelings about mentoring since it conflicts with the teacher induction program offered. Though literature did point out that teacher induction is part of mentoring. However, they differ in different contexts. Smith and Ingersoll (2005). They have noted that teacher induction programs have a number of objectives as they include workshops, support systems, orientation seminars, and specifically mentoring partnerships.

Participant T7 additionally notes a shift from teacher to teacher, not having a set schedule, and having to overcome administrative issues simultaneously. Support from administration regarding the settling of the new comers and making them aware of the policies of the institute may be required. As Hudson, Nguyen, and Hudson (2009) advocate without administrative support and qualified mentors, mentoring programs simply cannot succeed..

## 5.5 Time

Participant T8- At times the timing was inconvenient. Managing time with mentees and mentors may be difficult due to hectic teaching hours thus finding an applicable time would be relevant. Participant T2- did not benefit from the presentations. To support this, Al-Rabai (2014) raised the issue on the importance of time for mentors to allocate for mentees. Institutional support is essential to making this goal possible

Mentees' suggestions to make the mentoring program better in the future, have been grouped by their underlying themes, which are : 1) Mentoring starting early; 2) Early communication between mentees and mentors; 3) Awareness of rules, regulations, and orientations; and 4) Co-teaching and seeking help from experienced teachers.

The teacher induction program (Smith and Ingersoll, 2015) should be effective and could work in correlation with the mentoring program. Not only does mentoring promote professional development, it encourages a culture of learning among faculty members (Nicholls, 2015). To support that White and Mason (2003) believe that mentoring enhances teaching practice. Similarly, He (2010) note that mentees need pedagogical guidance and content information throughout the mentoring process (cited in Al-Rabia, 2004, p, 28).

# 5.6 Mentoring starting early

Participant T1 – "The mentor should be available from the beginning." Participant T6 similarly noted to "give new faculty members a mentor from their 1st day of orientation at KAU." Moreover, Participant T8 noted that "the 1st module at ELI is quite overwhelming and it would be helpful to have more guidance initially."

# 5.7 Early communication between mentees and mentors

Participant T2- "Actually I think connecting the mentors to teachers before they arrive...via Linkedin for instance. Linking with the same nationality an American with an American. I don't think a needs assessment was effective because you know we are all experienced teachers. I have 22 years. I felt comfortable that I could speak to her confidentially. Presenting the faculty handbook on a website through a powerpoint presentation. Creating a website for new teachers. Keep the mentees with the same nationality. T3 similarly stated, "I think if they have mentors set up like kind of prior their departure from their home country.—This implies that this participant in particular prefers a mentor of the same

nationality so that she would be comfortable and the accessibility to information about faculty would be easily accessible via a website rather than waiting for an orientation seminar or a teacher induction presentation.

# 5.8 Awareness of rules, regulations, and orientations

As Participant T3 explains, "My suggestion is to make sure the new comers... more aware of the of the administrative structures, university facilities, and teaching materials." T3 adds that I think it's a great program, and I'd say thank you for starting it! It's a great support for new faculty. T4 quoted that "I would like to have orientation at regular intervals...the course orientation yeah and then how to take exams, of course with some of the rules too, the dress code"...Smith & Ingersoll (2004) and Fiedler & Haselkom (1999) support the presence of teacher induction program as part of the mentoring program.

# 5.9 Co-teach and seeking help from experienced teachers

Due to the late launch of the program, Participant T4 wished that all mentees, new faculty are given opportunity to observe experienced teachers and to co-teach before they were assigned responsibility for their first class. Similarly, Participant T6 suggested to have workshops from the beginning. "I suggest that you have this type of peer thing like colleague helping you out. I would love to attend somebody and observe some senior teachers' classes." Similarly, peer mentoring paves a way for sharing knowledge and experience collegial support (Goodnough, et al; 2009; Nguyen, 2013).

Participant T7 noted that "Stay[ing] with one mentor for the entire time and just more a couple of visits to other level classes to be exposed to them...but teaching practice should occur within the main mentor's class. This benefits the new teacher and the learners, too. To practise teaching with the same group of students. Continuity is important. I suggest to teach the same level so it will be easier. Having the exposure to see different levels and different teachers and their style."

Professional Development is a component of mentoring as it supports novice teachers via the support of experienced teachers. The participants find peer mentoring to be helpful. To support that, Nicholls (2002), White and Mason (2003) and He (2010) support professional development as an integral part for learning in the mentoring process.

# 6. Conclusion

Participants in this study displayed generally positive reactions in terms of their perceptions on the success of the mentoring program, the facilitation of the mentoring program in helping new teachers adjust to the culture of the English Language Institute. Participants explained that the mentoring program helped to create an atmosphere where supportive relationships could be formed and helped them to learn from one another. Moreover, the mentoring program helped participants improve their teaching, which resulted in an increased feeling of security. Observing more experienced mentor teachers in the classroom helped them gain insights on the teaching techniques and how to resolve problematic issues. Concerning the challenges, some participants noted the lack of awareness of the program initially and required consistent guidance, Also, there was a need for more attention of how the new curriculum is specifically taught and an awareness of the new institute's regulations. Moreover, there is a need for more time for mentoring for some mentees.

As teacher induction is a part of the mentoring program it has to be clearly defined so that mentees are clearly aware of the institute's administrative regulations.

The data reveals that there is a main need of induction in relation to the current mentoring program.

For any institution to embark on a mentoring program, there should be trained mentors, adminstraitve support in terms of raising awareness to faculty staff of the availability of the mentoring program so that teachers could seek assistance early. The teacher induction program should cooperate with the mentroing program team so there are no repeated information in the mentoring program.

The research study has raised an awareness there should be clear teacher induction as a part of the mentoring program for new teachers of the institution. Or there should be a kind of coordination between both programs of what they can provide for teaching staff in terms of support.

In order to enhance active teaching teachers need to collaborate and learn from each other from voice of experience to novice teachers.

The study is a contribution to the area of mentoring for EFL teachers which is still new in the Saudi context. Though mentoring is practised in the neigbouring countries but not specifically to EFL teachers.

# 6.1 Implication and Recommendations:

The mentoring program should be initiated early in the semester with the allocation of a mentor to a mentee. Allocation of fixed times for mentoring specifically during hectic teaching hours which could be coordinated by both the mentor and mentee and support from administration so that mentoring program runs successfully. Comprehensive orientation sessions are an essential part of the mentoring program and should discuss issues such as administrative policies, managing new curriculum, dress code, and grading policies. To request from the administrative unit to emphasize on the mentoring program and raise its awareness and significance for staff.

Creating a website about important information for new teachers in order to provide easy accessibility of relevant information for teachers such as rules and announcements of the institute. Connecting mentors via Linkedin, or other professional social networking websites, before they arrive at the ELI. This will help the mentees a positive start and to reduce anxiety once they arrive in a new country and a new work setting.

Prioritizing Training workshops for new teachers ought to be a priority. Mentees ought to be given with opportunities to

observe classrooms in order to get familiarized with how the new curriculum is taught. Opportunities for co-teaching with peers to help teachers adjust to the new environment ought to be encouraged. Finally, consistent training of mentors may be required in order to meet the needs of the mentees.

### 6.2 Limitations of the study

The reason for the small scale of participants in this study is due primarily to the novelity of the program. As with any new inititive, there are challenges. As a new program within the institute, this study is a small step towards building a more effective and productive mentoring program at the ELI.

## References

Al- Kaabi, A. (2005). Factors influencing teacher attrition in the United Arab Emirates. (Unpublished doctoral dissertation). University of Pittsburgh, Pittsburgh, Pennsylvania.

Al-Rabai, A. (2014). Teacher preparation in the Arab World: Effective mentoring – A missing link. Merit Research Journals, 2(11), 288-295.

Al Qahtani, Saad. (2015). Students' Knowledge of, and attitudes toward, mentoring: a case study at the Master's Program in Health and Hospital Adminsitration. Advances in Medical Education and Practice, 6, 149-152.

Arnold, E. (2006). Assessing the quality of mentoring: sinking or learning to swim? ELT Journal, 60(2), 117-124.

Boyle, P. & Boice, B. (1998). Systematic mentoring from new faculty teaching and graduate teaching assistants. Innovative Higher Education, 22(3), 157-159.

Butcher, J. (2002) A case for mentor challenge? The problem of learning to teach post 16. Mentoring and Tutoring, 10(3), 197-220.

Daresh, J.C, (1995) Reasearch base on mentoring for educational leaders: What do we know? Journal of Educational Administration, 33(55), 21-24.

Delaney, A. Y. (2012). Research on Mentoring Language Teachers: Its Role in Language Education. Foreign Language Annals, 45(1), 184-201.

Goodnough, K., Osmond, P., Dibbon, D., Glassman, M., & Stevens, K. (2009). Exploring a triad model of student teaching: Pre-service teacher and cooperating teacher perception. Teaching and Teacher Education, 25(2), 285 -296.  $\sqrt{}$ 

He, Y. (2010). Strength based mentoring in pre-service teacher education: A literature review. Mentoring & Tutoring: Partnership in Learning, 17(3), 263-275.

Healy, C. C., & Welchert, A. J. (1990). Mentoring relations: A definition to advance research and practice. Educational Researcher, 19(9), 17-21.

Hoa, Nguyen. ( 2008). Mentoring Beginning EFL Teachers at Teritary Levels in Vietnam. The Asian EFL Journal, 10, 111-131.  $\surd$ 

Hudson, P., Nguyen, H., & Hudson, S.(2009). Mentoring EFL

preservice teachers in EFL writing. TESL Canada Journal, 27, 85-102.

Hutchinson, C. & Jazzar, M. (2007). Mentors for teachers from outside the U.S., Phi Delta Kappan, 88(5), 367-373.

Ibrahim, S. A. (2012). Induction and mentoring of novice teachers: a scheme for the United Arab Emirates. Teacher Development, 16(2), 235-253.

Ingersoll, R. & Kralik, J. (2004). The impact of mentoring on teacher retention: What the research says. ECS Research Review: Teaching Quality, 1-24.

Kanan, M. H.,& Baker, A. M. (2002). Palestinain novice teachers' perception of a good mentor. Journal of Education for Teaching, 28 (1), 35-43.

Kalbfleisch, P. J. & Bach, B. W.(1998). The language of mentoring in a health care environment. Health Communication, 10(4), 373-392.

Kanuka, H. (2005). Does mentoring new faculty make a difference? Teaching and Learning in Higher Education, 39, 1-3.

Le Cornu, R. (2005). Peer mentoring: Engaging pre-Service teachers in mentoring one another. Mentoring & Tutoring: Partnership in Learning, 13(3), 355-366.

Nguyen, H. (2013). Peer mentoring: A way forward for supporting preservice EFL teachers psychosocially during the practicum. Australian Journal of Teacher Education, 38(7), 31-44.

Nicholls, G. (2002). Mentoring: The art of teaching and learning. In P. Garvis (Ed). The Theory and Practice of Teaching (pp. 132-142). New York: Routledge.

Parsloe, E. (1999). The manager as coach and mentor. CIPD Publishing.

Qablan, A. M. Khasawneh, S. A., & Momani, I. A. (2009). Digging deep: Understanding the practice of mentoring prospective science teachers in an urban school Context in Jordan. PAACE Journal Lifelong Learning, 18, (xx)

Rowley, J. (1999). The good mentor. Educational Leadership, 56(8), 20-22.

Smith, T. & Ingersoll, R. (2004). What are the effects of induction and mentoring on beginning teacher turnover? American Educational Research Journal, 41(3), 681-714.

Sturman, A. (1994). Case study methods. In J. P. Keeves (Ed.), Educational Research, Methodology, and Measurement: an International Handbook (pp. 61-66). Oxford: Pergamon.

Stake, R. E. (1995). The art of case study research. London: Sage Publications.

Torrance, E. P. (1984). Mentor relationships. New York: Bearly Limited.

Yin, K. R. (2003). Case study research: Design and methods. London: Sage Publications.

3897

Wendell, M. (2003).Giving TESOL change a chance: Supporting key players in the curriculum change process, System, 31, 439-456.

White, M. C., (2003).Mentoring Induction principles and guidelines.Council for ExceptionalChildren.

http://www.cec.Sped.orgContent/NavigationMenu/Professiona lDevelopment/ProfessionalStandards/mipg manual\_11pt.pdf.

### II. Page Style

All paragraphs must be indented as well as justified, i.e. both left-justified and right-justified.

### A. Text Font of Entire Document

The entire document should be in Times New Roman or Times font. Other font types may be used if needed for special purposes. Type 3 fonts should not be used.

Recommended font sizes are shown in Table 1.

### **B.** Title and Author Details

Title must be in 20 points Times New Roman font. Author name must be in 11 points times new roman font. Author affiliation must be in 10 points italic Times new roman. Email address must be in 10 points times new roman font.

All title and author details must be in single-column format and must be centered. Every word in a title must be capitalized. Email address is compulsory for the corresponding author.

### C. Section Headings

No more than three levels of headings should be used. All headings must be in 10pt font. Every word in a heading must be capitalized except for short minor words as listed in Section III-B.

**Level-1 Heading:** A level-1 heading must be in Small Caps, centered and numbered using uppercase Roman numerals. For example, see heading "III Page Style" of this document. The two level-1 headings which must not be numbered are "Acknowledgment" and "References".

**Level-2 Heading:** A level-2 heading must be in Italic, leftjustified and numbered using an uppercase alphabetic letter followed by a period. For example, see heading "C. Section Headings" above.

**Level-3 Heading:** A level-3 heading must be indented, in Italic and numbered with an Arabic numeral followed by a right parenthesis. The level-3 heading must end with a colon. The body of the level-3 section immediately follows the level-3 heading in the same paragraph. For example, this paragraph begins with a level-3 heading.

### **D.** Figures and Tables

Figures and tables must be centered in the column. Large figures and tables may span across both columns. Any table or figure that takes up more than 1 column width must be positioned either at the top or at the bottom of the page.

Figures must be numbered using Arabic numerals. Figure captions must be in 8 pt Regular font. Captions of a single line must be centered whereas multi-line captions must be justified. Captions with figure numbers must be placed after their associated figures



### F. Table Captions

Tables must be numbered using uppercase Roman numerals. Table captions must be centred and in 8 pt Regular font with Small Caps. Every word in a table caption must be capitalized except for short minor words as listed in Section III-B. Captions with table numbers must be placed before their associated tables, as shown in Table

Sr.	Heading	Heading	Heading	Headin	Heading	Headin
No	1	2	3	g 4	5	g 6

G. Page Numbers, Headers and Footers

Page numbers, headers and footers must not be used.

H. Links and Bookmarks

All hypertext links and section bookmarks will be removed from papers during the processing of papers for publication. If you need to refer to an Internet email address or URL in your paper, you must type out the address or URL fully in Regular font.

### References

The heading of the References section must not be numbered. All reference items must be in 8 pt font. Please use Regular and Italic styles to distinguish different fields as shown in the References section. Number the reference items consecutively in square brackets (e.g. [1]).

- Ding, W. and Marchionini, G. 1997 A Study on Video Browsing Strategies. Technical Report. University of Maryland at College Park.
- [2] Tavel, P. 2007 Modeling and Simulation Design. AK Peters Ltd.
- [3] Sannella, M. J. 1994 Constraint Satisfaction and Debugging for Interactive User Interfaces. Doctoral

# E. Figure Captions

Thesis. UMI Order Number: UMI Order No. GAX95-09398., University of Washington.

- [4] Brown, L. D., Hua, H., and Gao, C. 2003. A widget framework for augmented interaction in SCAPE.
- [5] Y.T. Yu, M.F. Lau, "A comparison of MC/DC, MUMCUT and several other coverage criteria for logical decisions", Journal of Systems and Software, 2005, in press.
- [6] Spector, A. Z. 1989. Achieving application requirements. In Distributed Systems, S. Mullende
- [7] Forman, G. 2003. An extensive empirical study of feature selection metrics for text classification. J. Mach. Learn. Res. 3 (Mar. 2003), 1289-1305.
- [8] Fröhlich, B. and Plate, J. 2000. The cubic mouse: a new device for three-dimensional input. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems.
- [9] Bowman, M., Debray, S. K., and Peterson, L. L. 1993. Reasoning about naming systems.