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Internship Practices in Architectural Education: Student Perspectives

Mimarlık Eğitiminde Stajlar Üzerine Ampirik Bir Çalışma: Öğrenci Görüşleri

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ABSTRACT

The experience that students gain from internship programs is considered to be one of the most critical complements to higher education. Using data gathered through surveys with over 100 students from architectural education institutions in Turkey and focus group discussions with interns, key positive aspects, challenges, and shortcomings of architectural internships were identified. Results revealed that while students feel that both hard and soft skills needed in the workplace could—to some extent—be improved through internship programs, poor learning opportunities provided by employers, inability of architectural education to keep up with the rapidly evolving technology, and the misuse of interns remain as key problem areas. Therefore, the results imply a need for greater collaboration between university and industry and more empirical research into the effectiveness of different internship program structures.

Keywords: *Architectural education; skills; students' perceptions; survey; workplace learning.*

ÖZ

Öğrencilerin staj programlarından kazandıkları deneyim, yükseköğretimin en kritik tamamlayıcılarından biri olarak kabul edilmektedir. Türkiye'deki mimarlık eğitim kurumlarından yüzü aşkın öğrenciyle yapılan anketler ve odak grup görüşmeleri ile elde edilen verilerin kullanılarak; mimarlık stajlarının öğrenciye katkıları açısından olumlu tarafları, karşılaşılan problemler ve mevcut uygulamadaki eksiklikler tespit edilmiştir. Sonuçlara göre; öğrenciler staj programları ile iş hayatında gerekli olan hem sosyal hem de teknik becerileri bir ölçüde geliştirilebildiğini düşünürken; işveren tarafından sağlanan öğrenme fırsatlarının zayıf olması, mimarlık eğitiminin hızla gelişen teknolojiye ayak uyduramaması ve stajyer çalıştırılmasının amacından sapmasını temel problem alanları olarak görmektedirler. Dolayısıyla; üniversite ve endüstri arasında daha yakın bir işbirliğine ihtiyaç duyulmakla birlikte, staj programlarının etkinliğinin arttırılması için daha fazla sayıda araştırma yapılması gerekliliği ortaya çıkmıştır.

Anahtar sözcükler: *Mimarlık eğitimi; beceriler; öğrenci görüşleri; anket; staj.*

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Introduction

Internship programs emerge as an important opportunity to gain real world experience in higher education. These programs are often perceived to bridge the gap between the passive learning environment in the academy and the changing demands of the workplace. By complementing theoretical aspects, internships pave the way for students to enter into workforce sooner and with higher starting salaries (Freestone et al. 2007; Gault et al., 2000). Having completed internships, students are better prepared for their future careers by an improved understanding of real-world job expectations and by building confidence in their professional skills (Jackson, 2014).

Today it is widely accepted that both hard and soft skills are crucial in becoming successful in the world of business. Hard skills are specific, teachable technical knowledge that can be possessed typically by academic education. Soft skills on the other hand are about personality traits; in other words, our intrapersonal and interpersonal abilities that characterize our approach to managing ourselves and our way of handling relationships with others.

Another major contribution of internships for students is the acquisition of soft skills such as teamwork, leadership, communication skills and problem solving. University curricula is often designed to equip the students with the discipline related or 'hard skills' required in the workplace. However, studies show that employers are increasingly appreciating the value of 'soft skills' in hiring their future employees (e.g. Shannon, 2012). While many recent studies acknowledge that soft skills are as important as hard skills in recruitment, a growing body of research argues that employers value soft skills even more than specialist subject knowledge in the recruitment of graduates (Hesket, 2000; NBEET, 1992).

Previous studies show that the benefits of internship programs are not only limited to students but employers and universities are also positively affected from these programs. Employers for instance, may take advantage of improving their recruitment decisions by choosing the best students from their intern pool as employees (Coco, 2000; Gault et al., 2000), by creating a network to universities (Jackson, 2014) and by fulfilling social responsibilities (Thiel and Hartley, 1997). Universities on the other hand, gain an improved reputation by engaging in internship programs and their graduating students are better able to match the level of job requirements, thus increasing their graduate employment (Divine et al., 2007; Thiel and Harley, 1997).

Despite growing awareness on the importance of internships in smoothing the transition from university to the working environment, the mismatch between architectural education and practice is still being considered to be a critical weakness of the discipline (Gregory et al., 2013).

Few studies have attempted to enhance our understanding of the factors that affect the employability of architecture graduates. Shannon (2012) analyzed the factors prioritized in recruitment of architecture graduates through structured interviews with 21 architectural practices in Australia. Portfolio followed by on the job experience were considered to be the top two recruitment tools by employers. An interesting finding from interviews with employers was that the only way of really knowing candidates was through internships rather than interviews.

Although the forementioned benefits of internship programs are widely discussed and documented for various fields of higher education, few studies have investigated the role of these programs on the development architectural education. The research undertaken by Quinn (2003) is one of the most comprehensive empirical studies concerning internship programs in architecture schools. The author surveyed two groups of interns in architecture in the US. The first group consisted interns participating in the Intern Development Program (IDP) of the US; a program adopted for improving the quality of internships in architecture. The second group of interns included those participating in the traditional unstructured internships. The aim was to assess and compare the quality and the learning experience of interns in the two groups. According to the findings, there were few differences in the assessment of internships between IDP and non-IDP interns. The most important divergence was IDP interns felt more competent than non-IDP interns after their internships.

The research gap in the area of architectural internships appears to be larger in Turkey as to the best of authors' knowledge, no empirical research has been reported. Based on this research gap, the present study aims to find out the internship experiences of students in two different architecture schools in Turkey. The research questions are:

- Do students feel that architectural internships adequately prepare them for their future careers in terms of both hard and soft skills required in world of business?
- What are the gaps between architectural education and practice from student perspectives?
- What are the main problems experienced by students during architectural internships and how can the effectiveness of internship programs be maximized from the perspective of students?

An Overview of Architectural Internships in Turkey

There is a wide range of architectural education programs in the world. The western world predominantly uses

the three year architectural training and a two year practical training (3+2) system. Although the adoption of the 3+2 architectural education system in Turkey -which has been successfully applied in some countries- has been on the agenda of the Chamber of Architects for a long time, efforts have not yielded significant results. Thus, the architectural education in Turkey remains as a four year program and although a standardized nationwide system does not exist, in general students are obliged to complete two different types of internships during their education period. The first type of internship includes work practice in a typical architectural design office. The second is the construction site internship where the intern is required to monitor and actively participate in the execution of works. Duration is also not standardized (i.e. 240 hours each in sample universities). During the course of these internships, the students are required to keep a daily journal that shows their activities. Upon completion of internships, these journals, signed and approved by employers, are submitted to the internship management commission of universities in a specified format. These reports are then evaluated by the internship management commission at the end of each semester. After the internship programs, the students return to university for completing their degree.

By completing these internships, the students are expected to acquire the basic specialized technical (hard) and generic (soft) skills required for the work environment. Until today, the students were obliged to undertake these two courses and earned no credits for internships. However, with increasing awareness on the advantages of internships for the architectural education system, many higher education institutions in Turkey have already started to revise their internship programs by considering additional credits and by interrogating the duration required to obtain necessary skills.

Method

Survey

A total of 104 students were surveyed, consisting 76 females and 28 male students with an average age of 23. The questionnaire was administered to mainly fourth year undergraduate students in architecture at a state and a foundation university that completed internship program between 2012 and 2014. The questionnaire was prepared by the authors on the basis of previous surveys used in empirical research (e.g. Martin, 1997; Freestone et al., 2007) and their previous experience with architectural students' internship programs as one of the authors is the director and the second author was the member of architectural internship commission in a state university. The survey responses were then analyzed by the authors. Note that the two types of institutions i.e. one state and one foundation university are involved in this study in order to increase the size of the sample group. Undertaking a comparison between the two types of institutions is outside the scope of this paper as education and internship programs are similar.

The survey included a total of 15 questions. 9 of these required responses on a 5-point Likert scale (Table 2) and the remaining 6 required check-box responses. The first section includes demographic questions such as the gender, the year of architectural education and age (Table 1). Note that although architectural degree in Turkey is a four year program, a significant number of students prolong their education. The second section of the survey includes perceptions on the architectural office internship experiences in terms of hard and soft skills obtained, followed by another section that aims to collect similar data for construction site internship experiences. The first set of questions in Section 4 aims to collect interns' opinions about employers effectiveness in the development of skills that the intern is required to obtain during the program and workplace learning. The remaining set of questions collect data about prospects on post-graduation employment and the extent to which hard and soft skills developed at university matches the requirements of the world of work.

Focus Group Discussions

As focus group discussions enable an interaction between the moderator and group members, as well as an interaction between group members, focus groups complement other forms of data collection (Wong, 2008). For this reason, this method was adopted in order to clarify the reasons of failures and to gain a deeper insight into the factors that should be taken into account for the improvement of architectural internships. A total of 12 grad-

Table 1. Demographic data from the survey

Number of responses	104
Number of State University responses	46
Number of Foundation University responses	58
Female	76
Male	28
Age	
19-21	10
22-24	90
25-30	4
Year of academic study	
3	12
4	74
5	10
Over 6	8

Table 2. Summary of responses to the 9 Likert-type response questions

Survey question	Strongly agree	Agree	Unsure	Disagree	Strongly disagree
1. During the architectural office internship, I was mostly asked to work as a 'CAD jockey' involving no creative design	8 (7.69%)	38 (36.54%)	20 (19.23%)	32 (%30.77)	6 (5.77%)
2. The architectural office internship has improved my professional and technical skills.	20 (19.23%)	46 (44.23%)	26 (25%)	6 (5.77%)	6 (5.77%)
3. I was only allowed to quietly watch construction works in the construction site internship	16 (15.38%)	36 (34.62%)	6 (5.77%)	26 (25%)	20 (19.23%)
4. The construction site internship has improved my professional and technical skills	28 (26.92%)	50 (48.08%)	20 (19.23%)	2 (1.92%)	4 (3.85%)
5. The scope of work expected from me was clearly explained	18 (17.31%)	62 (59.61%)	12 (11.54%)	10 (9.62%)	2 (1.92%)
6. My employer motivated and helped me with my work so that i could accomplish the tasks in the best way	26 (25%)	50 (48.08%)	20 (19.23%)	6 (5.77%)	2 (1.92%)
7. I was given constructive feedback on how i was going in these internships	20 (19.23%)	72 (69.23%)	10 (9.62%)	2 (1.92%)	0 (0%)
8. I was not seen as an extra pair of hands, instead I was treated on a similar level to the professional staff	18 (17.31%)	44 (42.31%)	28 (26.92%)	6 (5.77%)	8 (7.69%)
9. I believe that I was mainly given routine / redundant tasks that involved no thought	12 (11.54%)	6 (5.77%)	32 (30.77%)	42 (40.38%)	12 (11.54%)

uating students from both universities volunteered for focus group discussions. A detailed investigation into the perceptions of students on the efficacy of internships in architecture, on employer attitudes towards interns and on strategies for improving the internship process was carried out.

Survey Results and Discussion

Development of Hard Skills and Quality of Learning

Table 2 shows the number and the corresponding percentages of responses to 5-point Likert questions. The aggregated results on questions 2 and 4 show that the majority of interns were satisfied with technical and professional skills obtained in architectural office and construction site internships. Construction site internships (question 4) were perceived to be slightly more valuable in improving technical and professional skills of students. However, interestingly, approximately half of the students agreed with question 3, 'I was only allowed to quietly watch construction works in the construction site internship'. The combined results of questions 3 and 4 reveal that even the students who are not allowed to actively participate in construction site processes and meetings are still satisfied with the technical and professional skills obtained. In this respect, one student from the focus group indicated that:

"My time spent on construction site was fruitful. Initially the employers only allowed me to watch quietly. I started to take up responsibilities in the third week. I was both given simple tasks such as controlling the quality of construction works, but also business related tasks that helped me to develop my skills."

Although the majority of the students felt that they have improved their technical and professional skills, a small number of students were not satisfied in this respect. When the students from the focus group were asked how the learning environment in internships could be improved, one student suggested the assignment of a supervisor in the company by indicating that:

"The only way to learn something during internships is to have a supervisor in the company who has an interest in introducing the practical side of the profession. Otherwise, you will be left to your own and a tremendous effort is needed for asking and interfering with each dimension of the work. Furthermore, many employers avoid hiring interns that they have to teach a lot of things. Instead they prefer interns who are already well equipped. I believe a course about communication and attitudes in the world of work is needed before internships."

Indeed some countries have already adopted a similar system for architectural internships (see e.g. Quinn, 2003) and the efficiency of the use of supervisors in internships is documented (Jackson, 2014). According to the American Institute of Architects (AIA, 2012) interns benefit from such a system by further improving technical and soft skills and by better preparing for the future career steps. While supervising system cannot solve all problems that the intern faces, it is still considered to be a valuable support for interns.

There were a variety of opinions about the learning opportunities provided by employers. When the reasons behind poor learning in internships were investigated, high workload of employers and corresponding lack of time for education came to the forefront. One student commented:

"Unfortunately companies do not necessarily have the motivation and time to educate interns. Almost all of my time in the architectural office internship was spent on doing small modifications in 2D CAD of the project. Construction site internship on the other hand was devoted to watching concrete works and reinforcement."

The quality of learning during internships is also highly interconnected with the way interns interpret the attitudes of employers. Many employers see interns as 'cheap labor' and thus it is not uncommon to find interns complaining of abuse. An outstanding negative attitude of employers is the misuse of interns by giving 'clerical-related' assignments rather than professional tasks and by exhibiting 'go for this and go for that' attitudes (Ross and Elechi, 2002). Freestone et al. (2006) and Freestone et al. (2007) have also reported similar problems faced by interns. In their study, the authors have attempted to assess the quality of work-based learning experiences of undergraduate urban planning students by using the 'work experience questionnaire' developed in Australia. Some students complained of not always knowing the standard of work expected by their employer and of not getting sufficient feedback on their performance. Others felt that they were overloaded with tasks that constrained their creativity.

Our results reveal that high to very high satisfaction were recorded for question 7, 'I was given constructive feedback on how I was going in these internships', for question 5, 'The scope of work expected from me was clearly explained' and for question 6 'My employer motivated and helped me with my work so that I could accomplish the tasks in the best way'. Moreover, question 8 'I was not seen as an extra pair of hands, instead I was treated on a similar level to the professional staff' and question 9, 'I believe that I was mainly given routine / redundant tasks that involved no thought' in the survey received lukewarm responses, showing that more than half of the architectural students (52%–60%) do not feel that they are abused by employers during their internships.

Although, these results do not fully support the validity of the misuse of interns by employers (at least for our sample), there are a few exceptions. For example one student from the focus group who has completed her internship in a multinational company commented:

"I was mainly given redundant and 'go for this go for that' tasks in internships such as going to the shop for buying materials for models. In fact, 90% of my time during the architectural office internship was devoted to producing models from current project drawings. The rest of my time was spent on coloring using a graphics editing software. Although I had to work long hours, I believe that I did not benefit from my experience. The internship processes and employers efficiency in providing the intern with the necessary skills should be controlled in one way or another."

Similarly, another student from the focus group indicated,

'During my architectural internship, I was responsible of changing the format of over 500 dwg files to pdf. For me, architectural office internship was completely a waste of time'.

CAD Jockey

As far as the questions on the use of technology in internships are concerned, emphasis has been given to CAD use. The results reveal that approximately half (44%) of the students felt that they were mostly asked to draw others' design, or to work as a 'CAD jockey' during their architectural office internships. Combined with the neutral responses, a high portion (63%) of the respondents were not satisfied with the scope of design tasks involved. Focus group discussions has also shown that the 'CAD Jockey' issue played such a critical role in students' career prospects that some students even changed their future career plans after observing the practical side of architectural education. In particular several students expressed a deep skepticism towards their previous career plans by indicating that:

"I was observing architects while I was making models. They were sitting in front of a computer screen like a robot from 9 o'clock in the morning until 7 o'clock in the evening, drawing the design of chief architect. It was very surprising for me to learn that some of these architects were graduated from top universities of the country. My future career plans completely changed after the architectural design internship. I am now sure that I don't want to become a CAD jockey, instead I plan to become a project manager. I now understand that this is the only way to become satisfied in my future career."

"During my time in architectural office internship I could find the opportunity to closely watch the architects. 2 chief designers were responsible of creating the design and the remaining 20 architects spent all day drawing the designs of chief architects. My career plans have changed after internships."

The Duration of Internship Programs

Upon a realization of the insufficiency of the duration from early interviews with students, the students were also asked to indicate the optimum duration for both types of internships. Approximately 63% and 59% of the interns were satisfied with the duration of architectural office and

construction site internships respectively. The remaining portion of interns who were unsatisfied provided a wide range of optimum durations. The majority of respondents suggested that the durations should be doubled to 480 hours for both type of internships. Their concerns are represented by the following statement:

"A minimum of two and a half weeks is needed for us to get used to the working environment, to start to communicate with other employees and to learn how the business is run in general terms. Only after 3 weeks of employment an intern is able to really start working and prove himself/herself. The duration should certainly be doubled."

However the majority of interns in the focus group complained in particular about the shortness of construction site internships in providing an effective learning environment. As construction site work progresses rather slowly, 240 hours practice in sample universities were seen to be insufficient and the interns could observe the realization of only a few construction work items. The comment of one student from the focus group who suggested that the durations should be significantly increased supports this argument.

"I believe that the duration of the architectural office internship was sufficient to develop my skills. Although I find construction site internships extremely useful in developing my technical and professional skills than architectural office internships, 240 hours was not enough to become trained in all phases of construction. A minimum of 6 months in a construction site could enable me to further develop my skills. A better option would be an opportunity to closely observe construction works from start to finish."

Another student from the focus group had similar views on the shortness of the duration of construction site internships. Despite the short duration, the dynamic environment of construction site and the emerging sudden problems could still offer interns an insight into the nature of construction. In this respect, the intern stated that:

"I could only see a small portion of construction works in the construction site internship because the progress was slow. However, at least I could witness a few crises and I could observe the emergency responses of directors. I think this is still a good experience."

The Acquisition of Soft Skills during Internships

Soft skills in the questionnaire were provided as checkbox responses where interns could choose the skills they were able to improve during internships. The 12 soft skills set were identified through a review of a number of publications (Odusami, 2002; Freestone et al., 2006; Freestone et al., 2007; Sid Nair et al., 2009; O'Brien et al., 2012; Shannon, 2012; Cameron et al., 2013; Smith and Worsfold, 2013; Jackson, 2014). Our results reveal that 96.15% and 94.23% of the students felt that they could develop soft skills during their work placement in the 'architectural office' and 'construction site' respectively.

When their responses to a question which asked them to identify the soft skills that they were able to improve during architectural office internships were evaluated, 'taking responsibility' emerged as the most rated skill followed by, 'working as a team member', 'time management skills' and 'oral communication' among a list of 12 attributes. Indeed, there is strong evidence in literature emphasizing that team work skills are extremely important for success in architectural profession. For example; the research by Shannon (2012) revealed that among eight categories of soft skills, teamwork was given the highest rating by employers of architecture graduates as

Table 3. Soft skills improved in architectural office internships

	No. of responses	Percentage	Rank
Taking responsibility	76	73,08	1
Teamwork	66	63,46	2
Time management skills	64	61,54	3
Oral communication	62	59,61	4
Decision making	56	53,85	5
Working under stress	52	50,00	6
Self confidence	50	48,08	7
Problem solving	48	46,15	8
Written communication	30	28,85	9
Persuasion	24	23,08	10
Competition	18	17,31	11
Conflict management skills	14	13,46	12

Table 4. Soft skills improved in construction site internships

	No. of responses	Percentage	Rank
Oral communication	78	75,00	1
Teamwork	66	63,46	2
Taking responsibility	64	61,54	3
Problem solving	60	57,69	4
Self confidence	54	51,92	5
Time management skills	52	50,00	6
Working under stress	38	36,54	7
Decision making	36	34,61	8
Conflict management skills	36	34,61	8
Persuasion	28	26,92	9
Competition	22	21,15	10
Written communication	12	11,54	11

interviewees emphasized the team based production nature of architecture.

Findings of our survey reveal that there was also a strong perception that their skills pertaining 'decision making', 'working under stress', 'self-confidence' and 'problem solving' improved during internships. As shown in Table 3, only a small percentage of students felt that they could improve their 'conflict management' and 'competition skills'.

As far as construction site internships are concerned, the top four rankings on the skills developed include 'oral communication' (75%),' teamwork' (63%),' taking responsibility' (62%) and 'problem solving' (58%). The least two acquired skills are 'written communication' and 'competition' (Table 4).

Table 5. Knowledge areas that the students felt 'not prepared'

Knowledge area	No. of responses	Percentage	Rank
Knowledge on construction materials	64	61,54	1
3D CAD	62	59,61	2
Detail design	60	57,69	3
Mechanical and electrical installations	48	46,15	4
Acustics	42	40,38	5
The identification and management of risks	42	40,38	5
Sustainable design, construction and certification systems	40	38,46	6
Bidding and contract documents	38	36,54	7
Materials and technologies used in sustainable design	36	34,61	8
Producing design based on building codes	34	32,69	9
Lighting	32	30,77	10
Site investigation	30	28,85	11
Payment types	30	28,85	11
Thermal comfort	28	26,92	12
Construction approvals	28	26,92	12
The preparation of technical specifications	28	26,92	12
Knowledge on the structural properties of materials	28	26,92	12
Historic preservation and restoration	28	26,92	12
Landscape design	26	25,00	13
Determining project feasibility	26	25,00	13
Building cost analysis	26	25,00	13
Structural design	24	23,08	14
Interim certifications	22	21,15	15
Financial structure of the company	22	21,15	15
Construction insurance	22	21,15	15
Resource planning	20	19,23	16
Construction monitoring, control and progress reports	20	19,23	16
Quality assurance and control	20	19,23	16
Organisational structure of the company	20	19,23	16
The evaluation of social impacts	20	19,23	16
Internal design	18	17,30	17
Project delivery methods	18	17,30	17
Construction scheduling	18	17,30	17
Building provisional and final acceptance certificates	18	17,30	17
Building Information Modelling	16	15,38	18
Preparing sketches by hand	12	11,54	19
The identification of client's requirements	12	11,54	19
The evaluation of environmental impacts	10	9,61	20
Layout plans	6	5,77	21
Preparing schemes for spatial relationships	6	5,77	21
2D CAD	6	5,77	21
Design development	4	3,85	22

Referring back to the work of Shannon (2012), the combined results from the two types of internships show that while the development of teamwork and oral communication skills in internships could be considered as a positive aspect, some skills, in particular 'written communication' developed during internships are insufficient for a smoother transition to work.

Preparedness for Future Careers

As stated above, more than half (63.46%) of interns agreed that architectural office internship has improved their technical and professional skills. An analysis of technical and professional skills that the students felt 'not prepared' during their internships is also provided in order to determine the difficulty experienced in the transition from university to work environment. In essence, this section of the survey aimed to reveal the extent to which graduating students perceive themselves to be ready to enter into employment.

Table 5 shows the number of students who felt 'not prepared' in specific subject areas. Over half of the graduating students felt that their knowledge on construction materials, 3D CAD and detail design was not sufficient in meeting the job requirements. A high number of unpreparedness was also recorded for 'mechanical and electrical installations', 'acoustics', 'the identification and management of risks' and 'sustainable design'. Surprisingly, it appears that the top three subject areas that students feel the least competitive include core technical knowledge areas. Focus group discussions have clarified the reasons behind high unpreparedness in core fields. According to student perspectives, this may be attributable to the shortcoming of architectural education in keeping up with the rapidly evolving technology in the world of work. A valuable suggestion for aligning educational programs with competencies required in the workplace includes a stronger collaboration between industry and academy.

Opposed to the findings of Quinn (2003) which showed that in general the interns felt the least competent in the business side of architectural practice, our results reveal that a majority of the students feel not prepared in design and material related knowledge areas. However, this may be attributed to the differences in the structure of the internships and architectural education programs between the two countries. For example, the majority of the sample group in Quinn's study was comprised of IDP interns who are expected to complete training units in sixteen areas of practice including business side units such as determining project feasibility and managing contractual relationships. However, focus group discussions conducted within the scope of this research reveal that there is little emphasis on project management related areas in architectural internships in Turkey. Students are mainly provided with design related rather than administrative tasks and thus, it is highly probable that they get a little chance to face the business side of the profession. This may be the reason for the low unpreparedness score on project management related areas (Table 6).

Table 6. Soft skills that the students felt inadequate

	No. of responses	Percentage	Rank
Conflict management skills	36	34,62	1
Competition	32	30,77	2
Written communication	32	30,77	2
Oral communication	30	28,85	3
Teamwork	28	26,92	4
Working under stress	28	26,92	4
Persuasion	28	26,92	4
Decision making	24	23,08	5
Problem solving	24	23,08	5
Taking responsibility	24	23,08	5
Self confidence	16	15,38	6
Time management skills	10	9,62	7

As far as the unpreparedness in soft skills is concerned, 'conflict management', 'competition' and 'written communication' appeared to be the top three skills that students felt inadequate. These results are consistent with the findings of the 'soft skills gained in internships' as these three skills were among the least developed soft skills in internships. The results show the existence of an important gap in architectural education. Therefore further research should focus on the development and integration of in particular these skills into the architectural curricula.

Conclusion

Despite a better understanding of the benefits of internships for various types of educational fields, there has been very few studies focusing on the efficiency of architectural internships. In order to fill this gap in literature, this research has explored the efficiency, challenges and benefits of internship systems in architectural education. To reach this aim a mixed method of post internship surveys and focus group discussions has been adopted. Although the results pertain to our sample of students, employers and in particular educational institutions from other countries may also find useful lessons from our findings.

The combined responses for our first research question 'Do students feel that architectural internships adequately prepare them for their future careers in terms of both hard and soft skills required in world of business?' reveal that over half of the students could develop both hard and soft skills during internships. However construction site intern-

ships were perceived to be slightly more useful in developing the skills required by employers.

In order to address the second research question 'What are the gaps between architectural education and practice from student perspectives?' interns were asked to provide views on their perceived competency in key areas during internships. Interestingly, the core subjects of architectural education were at the top of 'feel not prepared list'. This finding shows the existence of an important gap in architectural education in the country.

An examination of the soft skills improved in internships shows that students do not find the opportunity to improve 'written communication', 'competition' and 'conflict management' skills neither in education nor in practical training. Thus universities and authorities responsible for creating curriculums should pay attention to the least competent core subjects and soft skills revealed in this study. In this concept further research is needed to clarify how these skills can be developed (whether it's a course or an additional practical training) and how they can be integrated in to the architectural curricula.

The last research question 'What are the main problems experienced by students during architectural internships and how can the effectiveness of internship programs be maximized from the perspective of students?' provided several insights into the development of architectural internship programs. The main outcomes can be listed as follows;

- The duration of both types of internships should be increased.
- It has been observed that interns highly advocated the introduction of 'supervisors' for direction and constructive advice. Experience gained in western countries can play an important role in the integration of a supervisor role into the existing system. The adoption of such a system will further require a close collaboration between academic institutions and architectural offices/construction companies.
- Focus group discussions in particular unveiled that interns spent most of their time on drawing the design of the chief architects. However, taking preventive measures to improve learning opportunities is difficult as this will require a comprehensive inspection of the employing institutions.

Overall, it appears that establishing an optimum balance between practice and academic based learning is the most important factor in the design of architectural education. However, it should always be kept in mind that internship is not an alternative but a complement to academic education. In this concept, feedback from industry and students on their positive or negative experiences and expectations are extremely valuable. Thus, future work should first of all focus on enhancing our understanding of the problems encountered by interns through nationwide empirical research and then on developing strategies to overcome them. Architectural education programs should be revised using this feedback and in this way students' preparedness to the world of work can be improved.

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