A Comparative Study of an Architectural Design Course of Two Sections: The Course Impact on the Performance and Continuation of a Major-Assessment Based on Two Design Projects

Dr. Nibert Saltibus, Sam Houston State University

Assistant Professor Department of Engineering Technology Sam Houston State University Huntsville, TX
Email:nes021@shsu.edu

A Comparative Study of an Architectural Design Course of Two Sections: The Course Impact on the Performance and Continuation of a Major-Assessment Based on Two Design Projects

Abstract

In a typical semester (Fall/Spring) Architectural Design course, students complete two major architectural design projects. Before students begin work on these two aforementioned projects, students also work on a very small lake cabin drawing, which serve as an introduction in using the basic tools of the Revit Software, but was not considered for this research. The textbook utilized was an SDC Publication textbook entitled Residential Design Using Autodesk Revit [1] (now, 2018). The first project makes use of an SDC publications textbook [1] where students work on constructing a single family residence comprising of a basement, first floor, and second floor. During the latter part of the semester, students are to design and construct their own single floor dwelling for a single family residence. Students are to adhere to instructions for both projects. This is especially important for the second project minimum where building standards or codes are to be adhered to where applicable and emphasized by the instructor. In addition to the lake cabin drawing, Quizzes and other assignments were also assigned but not considered for this research. At the beginning of the Fall 2017 semester, students were to complete questionnaires related to their career choices in the construction industry and course related majors/minors. Towards the end of the semester, a similar questionnaire was issued which evaluated students' experience in the course. The second questionnaire was designed to determine whether or not students' career choices changed or remained the same at the conclusion of the course. The responses from the surveys and data from the two architectural project assessments were compared from both sections to identify whether the students' responses or career choices had an impact on a particular class section performance.

Introduction

According to Gottesman [2], there have always been architects who choose to cross over the construction industry in order to fulfill executive roles. It is further noted that the potential of expanding the role of the architect-builder is arguably more interesting than established practice and worthy to be explored. Furthermore, Gottesman [2] explains that there is much to be said for a system which enables architects to retain control and responsibility for the realization of architecture, and that however, there are practices that have chosen to expand their range of services to include the role of general contractor or project manager. Construction Management is the major program of study in the Engineering Technology Department at Sam Houston State University. The course Architectural Design is offered in the Spring, Fall, and Summer semesters. Generally, sophomore level students enroll in this course which require at least Engineering Graphics as a pre-requisite. At present, only one level of Architectural Design is offered. During the Fall 2017, semester the course was composed of two major projects along with quizzes and assignments. Although this is primarily an Architectural Design course, emphasis is also placed on students learning and utilizing the Revit software to produce both the projects. As it pertains to projects employed in learning, Panta [3] utilized the comparative analysis technique on problem based learning over two years through semester projects in a particular course. Comparatively studied, was the effectiveness of project based learning (PBL) in students learning. Panta [3] concluded that the semester project approach proved to be an effective pedagogical tool. Additionally, Demirbas,et al. [4] evaluated the effects of learning style preferences on the performance of design students as it pertains to the design process. The study consisted of freshmen students, where their study concerned staircases, which included modeling and doing orthographic drawings. Moreover, Demirbas,et al. [4] concluded that various types of learning were effective on the performance scores of students in different stages

of a design problem through the studio process and that there is a shift from the learning that takes place by experiencing and learning by doing, to learning by reflecting and learning by thinking. Therefore, in producing these two major design projects in the Architectural Design course, specifically the students' own individual designs, the students would have to draw from their learning experiences from their construction and design related courses where applicable. The aforementioned process would necessarily be valid as Oxman [5] notes that Architectural Design shifts from pure modeling to that of an understanding of the organizational principles and systems, having a specific behavior. The first project makes use of an SDC Publications textbook [1]. This also enables students to learn the tools of the software, become familiar with architectural and construction methods, and understand details employed in the design and construction of residential buildings. The first project is in the format of a tutorial where students work on constructing a single family residence which comprises of a basement, first floor, and second floor. Students are also to interior design the kitchen, bathroom, and office on the second floor. The second project consists of the plan and design of a single floor for a single family residence. This design must also include interior designing. All students must do their own plan and design. A rubric was used to evaluate students' work.

Methodology for Assessment

For the first major project, students were evaluated on the various categories and ranges outlined in the rubric. The categories ranged from First Floor (walls, windows, doors) to Photo-Realistic Renderings (3D-Site, Exterior, & Interior). The Construction Documents Set/Drawings on Sheets, which is placing the drawings on their respective sheets and being properly oriented, which refers to drawings on sheet space, were also evaluated. The evaluation of this project served as the students' mid-term exam grade. Students commenced work on their second project

directly after completion of their first design. The contents of the floor space was issued to the students. The total floor space including the garage measured 4050 ft². The students were allowed a toleration of $\pm 10\%$ (3645 ft²/4455ft²). For this second project, students were to adhere to minimum standards and building codes where applicable in their design and emphasized by the instructor. To assist in their resources as they proceeded with their project, students were advised to utilize another textbook required for the course, entitled, “Architectural Drafting and Design” [6]. A grading rubric was also issued for this second self-designed architectural project ranging from categories such as but not limited to Room Relationships: sizes & floor design, walls, doors, and windows, Dimensioning, Sections, Interior Design, and Construction Documents Set-Drawings on sheets/placed & oriented properly. All elements or features were to reflect proper/acceptable dimensions, sizes and specifications where applicable, and as they pertained to minimum standards and/or codes. Before work commenced on these two projects, students worked on a small lake cabin drawing. This drawing, which was completed at the beginning of the semester served as an introduction in the utilization of the basic tools of the Revit software.

Furthermore, at the beginning of the Fall 2017 course, questionnaires were issued to the students. These questionnaires were prepared by the instructor and included questions related to students’ career choices in the construction industry field as well as questions pertaining to course related majors/minors. A Follow-Up or Post-Questionnaire was disseminated to students towards the end of the semester. This second questionnaire specifically evaluated any changes in student career choices. Furthermore, in that specific questionnaire, the students were asked their majors as well.

The first questionnaire (Questionnaire #1) comprised of the following questions:

Instruction: Please select one response and where appropriate answer accordingly.

1. Which one of these would you like to become?
 - (a) An Architect
 - (b) A Construction Manager
 - (c) An Engineer
 - (d) An Engineering TechnologistOther: Please Specify _____
2. Is this course required for your major?
 - (a) Yes
 - (b) No
3. If pursuing a minor, is this course required for your minor?
 - (a) Yes
 - (b) No

The difference between an engineer and engineering technologist was generally explained upon administering the questionnaire.

The second questionnaire (Questionnaire #2) comprised of the following questions:

Instruction: Please select one response.

1. After completing this course (Architectural Design), if you acknowledged that you wanted to become an [Architect] in Questionnaire #1, do you still want to become an Architect?
 - (a) Yes
 - (b) No
2. After completing this course (Architectural Design), if you did not acknowledge that you wanted to become an [Architect] in Questionnaire #1, would you now want to become an Architect?
 - (a) Yes
 - (b) No
3. Which one of the following is your major?
 - (a) Construction Management
 - (b) Design & Development
 - (c) Engineering Technology
 - (d) Electronics & Computer Engineering Technology
 - (e) Other: Please specify _____

Results & Analysis

The responses from the questionnaires and the performances in two architectural project assessments were compared for both sections. The data findings are presented below.

A total of approximately twenty students completed the Pre-Questionnaire (Questionnaire #1) in *Cl-S2-R* (Class section 2-Thursdays class). The data received from the Pre-Questionnaire is given

in Figure 1(a,b). The abbreviations for Figure 1(a,b) are as follows: *Cl* = Class, *S1* = Section 1, *S2* = Section 2, MW=Mondays-Wednesdays, R=Thursdays.

FIGURE 1: Pre-Questionnaire (Questionnaire #1)

For Question 1, Figure 1, it must be noted that only one student wanted to become an Architect based on the selection from Class Section 2, Thursday class (this particular student also selected two other options:- (b) *A Construction Manager*, (d) *An Engineering Technologist* and also specified for (e), *safety inspector/manager*). However, for both Class Sections 1 & 2, Construction Manager (Project Manager) received the highest rating, 68.2% and 90.0% respectively. Although there was no one opting for Interior Designer in *Cl-S2*, there were approximately 36.4% responding for this option in *Cl-S1*. This can be reflected in the fact that there were interior design students registered for *Cl-S1*. There were two students (15%) from *Cl-S2* selecting *Engineering Technologist* as their future career goal, while none opted for this option in *Cl-S1*. One student who selected, (a) *A Construction Manager*, also chose other, identifying a *Superintendent* as a career choice. Both results were included in the data for analysis. In Section *Cl-S2*, very few students were given back their work to re-take the survey to keep it anonymous. This particular student's (who also specified *Superintendent*) response at least varied for the second survey. Therefore only the first survey was considered. The majority of students (at least 95.0%) from Class Sections 1 & 2 responded that the course was a requirement for their major. For Class Section 1, only 4.5% of the students did not require the course for their major while 5% did not require the course in Section 2. As it pertains to the minor in Question 3, at least 70% of students in both sections noted that this course was not required for their minor. This suggests that if answered appropriately by all students, that their minor may not be related to their construction major. The construction majors do not have an elective option but rather in some instances do have an option between two courses such as Civil Drafting or Construction Drafting. As it pertains to the data, for *Cl-S1* Pre-Questionnaire, one student did not select option (b) *Construction Manager*, but rather the student wrote *construction*

manager along with *interior design* as career choices. Another student selected both options (b) and (e), and still another student selected two options both (a) and (b). In Section *Cl-S2*, a particular student selected (a), (b), (d), and then specified *safety inspector-manager*.

The responses given by the students in the Post-Questionnaire are described in Figure 2. For Question 1 of the Post-Questionnaire, 11.8% (2 students-*Cl-S2*) answered *Yes*, that they still wanted to be an Architect after completion of the course (Figure 2a). Although students' responses from *Cl-S1*, came from both Q.1& Q.2 by individual students, as only two students indicated that they wanted to become an *Architect* in the beginning of the Fall 2017 semester, it was therefore assumed that these were the same two that wanted to continue their selection; $n = 17$, 5 did not take survey. It must be noted for *Cl-S2*, that although one student answered *Yes*, and three students answered *No*, these were not included in the graph as it is a strong possibility that students misunderstood the question or did not remember their response from the first survey. The results should not have been so high since in the Pre-Questionnaire, one student selected the *Architect* option. For Question 2, *Cl-S1*, over 80% of the students answered *No*, while 61.5% in *Cl-S2* also answered *No*. It is interesting to note that now, after the completion of the course, even though one student indicated the preference to become an *Architect* at the beginning of the class, there is now 23.1% indicating that they now want to become an Architect, assuming that these also understood the question correctly. It must be noted that for *Cl-S1*, one student answered *Yes* for Question 1, and still answered *No* for Question 2, while another student in the same Class Section answered *Yes* for Question 1, and still answered *Yes* for Question 2; these students' responses were not included in the data for analysis for Question 2. For *Cl-S2*, another student who answered *No* for Question 1 (also selected *Yes* for Question 2-result not included for Question 1) indicated that the Pre-Questionnaire was not taken. Furthermore, for

Question 2, one of the students who answered *No* indicated the same. It is a strong possibility that it is not possible that they did not take the Pre-Questionnaire, as all students were accounted for based on the information received from the investigator. For Question 3, one student selected two options, possibly because the student had two career interests or options (*Construction Management, and Agricultural Engineering Tech*). Furthermore, for Question 1 *CI-S2*, one student answered *Yes*, and also selected *No* for Question 2. The data was therefore not utilized, because the one student who selected the *Architect* option also selected other options for Question 1 in the Pre-Questionnaire. This students may not necessarily have been the same one who answered this Questionnaire.

FIGURE 2: Post-Questionnaire (Questionnaire #2)

FIGURE 2: Post-Questionnaire (Questionnaire #2)

For Question 3, the two dominant majors for the Fall 2017 course are Construction Management and Interior Design. Also, there was one student from *Agricultural Engineering Technology* in each of the Class Sections taking this course. To the author's knowledge, this course (Architectural Design) is not a requirement for this major, but it may be a required elective. The lower value for the Construction Management majors in the Post Questionnaire-*CI-S1* when compared to the value of A *Construction Manager* in Pre-Questionnaire-*CI-S1* the *Construction Manager* could be explained due to the lower sample ($n = 17$) of students who took the Post Questionnaire.

Table 1 presents a breakdown of the students' grade ranges for Project 1 in both Class Sections, *CI-S1* and *CI-S2*. As the class sizes (n) are different, the discussion can be comparative.

No one attained at least 90% in Project 1, however, four students attained a minimum of 80% while five students earned a minimum of 80% in *Cl-S2* and *Cl-S1* respectively. One student attained in the range of $60\% \leq x < 70\%$ in *Cl-S2*, whereas four attained that range in *Cl-S1*. While four students received less than 60%, in *Cl-S2*, three students scored within that range in *Cl-S1*. The better performance for *Cl-S1* may have been attributed to the high number of Interior Design students (Figure 1a; Figure 2a) having possible background in some design related courses and possibly the use of some design software as well. These factors may have contributed to the very low number of students in *Cl-S1* ($n=4$) receiving less than 70% overall compared to *Cl-S2* ($n=8$). It must be noted that in some sections of the matrix, students did not do these sections and in other cases only did partial of these subcategories required by the Rubric Matrix.

TABLE 1: Project 1 (*Residential Design Using AutoDesk Revit 2018, Stine [Tutorial]*)*

Class Section	<60%	≥60%	≥70%	≥80%	≥90%	<i>n</i>
Cl-S2 Pr.1R	4	4	6	4	0	18
Cl-S1 Pr.1MW	3	1	14	5	0	23

*R-Thursday, MW- Monday-Wednesday

Furthermore, for Project 1, *Cl-S1* MW ($n = 23$) scored a higher average than the *Cl-S2* R ($n = 18$), but the difference in the average percentage was (2.5%). The variable, n , is the number of students per class section. This suggests that both classes overall performed relatively on the same level for Project 1. However, *Cl-S1* had more students ($n = 19$) or (82.6%) who received minimum of 70% compared to ($n = 10$) or (55.5%) students from *Cl-S2*. Also more students ($n = 20$) or (86.9%) from the *Cl-S1* received a minimum of 60% compared to ($n = 14$) or (77.8%) of students from *Cl-S2*, based on each class's respective size (n).

For Project 2, grade ranges of students in both sections are illustrated in Table 2. The size, $n=18$, for *Cl-S2* has now been reduced to 16. For both classes, the number of students from

both sections receiving less than 60% was approximately 2 and 3 for *CI-S2* and *CI-S1* respectively. No student in section *CI-S2* received a grade from 60% to less than 70%, while three students in *CI-S1* attained a grade within that percentage range. For both Class Sections, the majority of the students received scores between the range of 70% and less than 90%. As illustrated in Table 2, one student attained at least 90% for this individual project.

TABLE 2: Project 2 (*One Floor Residential Design by Individual Students*)*

Class Section	<60%	≥60%	≥70%	≥80%	≥90%	<i>n</i>
CI-S2 Pr.2R	2	0	8	6	0	16
CI-S1 Pr.2MW	3	3	12	4	1	23

**R-Thursday, MW- Monday-Wednesday*

Moreover, for Project 2, *CI-S2 R* ($n=16$) scored a higher average than the *CI-S1 MW* ($n = 23$). It must be noted, and it is interesting, that the difference in the average percentage was (3.1%), a little over the difference recorded for Project 1. This again further suggests that overall the students in both class sections performed relatively similar to each other.

However, *CI-S2* class had more students ($n = 14$) or (87.5%) receiving a minimum of 70%, when compared to the number of students ($n = 17$) or (73.9%) with the same minimum for the *CI-S1* class, and approximately the same percentage of *CI-S2* students (87.5%), ($n = 14$) receiving a minimum of 60% when compared to (86.96%), *MW* class (*CI-S1*), ($n = 14$), based on each class section's respective size (n). For the students who did not continue with the course throughout the entire semester, the data analyzed was based on the respective new n , (16).

The once a week class (*R*) vs the twice in the week (*MW*) class do not necessarily show a significant impact on the results of the projects. The assessment of Project 2 was further broken down to reflect the various categories by which the students were assessed. There was a relative improvement in this Project 2 for *CI-S2* as when was compared to Project 1. For *First Floor Room Relationships and Sizes (FRRS)*, where rooms were assessed (*Table 1*)* based on their

close proximity for convenience and minimum sizes, the average for both class sections was approximately the same (78.3/78.1%). For *Elevations (EL)*, and *Schedules/Tags/Annotations (STA)*, a percentage average difference of 1.8, and 2.5 respectively was noted, again comparatively fair for both class sections. In the *EL* category, interior elevations with annotations such as kitchen cabinets were required. Again in both of these sections, many students did not complete the sections, which affected their assessment outcomes. At least one element and/or principle of design was also addressed in this category. In both Class Sections, students generally performed well in the *Photo Realistic Rendering (PRR)* category. For the *Dimensioning (DI)* category, there was 0.9% difference in the averages. For the *ID* category, students in both Class Sections performed very well (minimum 81.5%) with 2.9% difference. Moreover, the *Foundation Systems (FS)* category assessment suffered in both sections, where many students did not place any foundation system for their structure. While some students placed the foundation, it was incomplete, and/or the standards and codes were not adequately reflected. For the *Floor Systems & Reflected Ceiling Plan (FSRCP)*, 3.3% difference in the average was evident. Moreover, it must be noted that many elements in this category was missing from both Class Sections. For the *Roof/Roof Plan (RRP)* category both class sections performed very well (93.5%, minimum). For the *Section (S)* category, at least one student in *Cl-S2* did not provide any of the requirements. However, in both Class Sections, many students did not produce the complete set of the features and elements required, and as a result this category's assessment negatively impacted students' performance, particularly in *Class Cl-S1*. The *Construction Documents Set/Drawings on Sheets (C)* category also resulted in the reduction of students' grades. Many students did not complete most of the subcategories within

aforementioned *C* category, which included submitting the required drawings, orienting them, and placing them properly on the respective named sheets.

TABLE 3: Project 2 (One Floor Residential Design by Individual Students)*

FRRS	EL	STA	PRR	DI	ID	FS	FSRCP	RRP	S	C	
78.3	68.5	66.3	78.3	66.3	81.5	56.5	71.7	93.5	62.0	65.2	S1MW
78.1	70.3	68.8	84.4	67.2	84.4	65.6	75.0	100.0	62.5	62.5	S2R

***FRRS**: First Floor Room Relationship & Sizes; **EL**: Elevations; **STA**: Schedules/Tags/Annotations; **PRR**: Photo Realistic Rendering; **DI**:Dimensioning; **ID**: Interior Design; **FS**: Foundation System; **FSRCP**: Floor System & Reflected Ceiling Plan; **RRP**: Roof/Roof Plan; **S**:Section; **C**: Construction Documents Set/Drawings on Sheets. (Numbers are average percentage (%))

To provide additional information, an aggregate score by section to complement Table 3 is shown in Table 4. For *S1 (FRSS to S)* the total score possible is 184 except for *C*, and for *S2 (FRSS to S)* the total is 128 except for *C* as is reflected in Table 4.

TABLE 4: Project 2 Aggregate Score by Section (One Floor Residential Design by Individual Students)*

FRRS	EL	STA	PRR	DI	ID	FS	FSRCP	RRP	S	C	
144	126	122	144	122	150	104	132	172	114	60/92	S1MW
100	90	88	108	86	108	84	96	128	80	40/64	S2R

Moreover, Figure 3 & Figure 4 depicts sample residential design works by two students, one from each Class Section, *CI-S2* (Figure 4) and *CI-S1* (Figure 5). Both Architectural Design works contain a Floor Plan, 3D Site Rendering, Interior Kitchen Rendering, and Living Room Rendering.

Figure 3: Student A-Single Residence Design (Floor Plan, 3D Site Rendering, Camera 3D View, Interior Kitchen Rendering, & Interior Living Room Rendering)

Figure 4: Student B- Single Residence Design (Floor Plan, 3D Site Rendering, Camera 3D View, Interior Kitchen Rendering, & Interior Living Room Rendering)

Conclusion

The difference in the means in both Class Sections for both projects (1&2) was at most 3.1%, which suggests that the students' comparative performance in both classes was generally fair.

Also, the once a week class (*R*) versus the twice in the week (*MW*) class do not necessarily show a significant overall impact on the results of the assessment from the projects (P1&P2).

However, in some aspects of the total number of students scoring above a minimum, *Cl-S1 (MW)* performed better in the Project 1. The interior design students in the *Cl-S1* may have had an impact on this performance (Figure 1a, Figure 2a) due to possible related course work experience and possibly the use of some design software as well. However, the total number of students scoring above a minimum of 70% can possibly be attributed to their assimilated learning on design principles during the semester. The responses from both questionnaires, Pre- and Post-, may not have had a significant impact on the grades based on the mean, except where it can be observed that *Cl-S2* with no interior design students had more students scoring a minimum of 70%. In many of the categories for Project 2, the averages were comparable between both Class Sections. In some particular aspects of the analyses, *Cl-S2 (R)* performed better than that of *Cl-S1 (MW)*. As it pertains to what possible impact that this course may have had on the selection or continuation of a particular major, such as Construction Management or Interior Design, for these students surveyed and enrolled in this Architectural Design course, the impact may have had negligible influence based on the responses. Nonetheless, it must be noted most students who indicated that they did not want to become Architects in this Class (*Cl-S2*) toward the end of the semester indicated that now they would want to become Architects, although very few, and the possible two who indicated that they wanted to become Architects (*Cl-S1*) at the beginning of the semester did not increase. In agreement with Gottesman [1], such that there are practices that

have chosen to expand Architects range of services, to include the role of general contractor or project manager, one student from *CI-S1* & *CI-S2* wanted to aspire to shoulder at least the dual function of an Architect and a Construction Manager. Finally, the broader implications for education generally is that this simple research suggests that Construction Majors are mainly focused in their field of study as opposed to wanting to divert into the design aspect of buildings.

References

1. Stine, D. J. Residential Design Using Autodesk Revit® 2018, 2017. SDC Publications, Mission, KS.
2. Gottesman, A. "The architectural condition." Gottesman Publications. 2013. Rishpon, Israel.
3. Panta, Y. "Comparative study of students' problem based learning over two years through semester projects in fluid mechanics."2016. *Proceedings*. ASEE North Central Section Conference. ASEE.
4. Demirbas, O.O, and Demirkan, H. "Focus on architectural design process through learning styles." Elsevier Science., 2003, 24, 437-456.
5. Oxman, R. "Digital architecture as a challenge for design pedagogy: theory, knowledge, models, and medium." 2008. Elsevier Science. 29, 99-120.
6. Madsen., J. A., Madsen, D. A., and Madsen, D.P. Architectural Drafting and Design. 2017 Cengage Learning, MA.

APPENDIX

Limitations: Relevant Notes On the Data-Although these are mentioned in the text, at least many if not most are placed here for the reader's reference (with elaboration where applicable):

It must be noted that the information presented in the graphs from the Questionnaire responses may reflect slight variations in accuracy with possible minimum levels of error. These may be based on student error while answering questions. The author, to the best of his abilities and judgment, utilized student responses and reproduced them to form the information for the graphs.

Pre-Questionnaire

It must be noted as it pertains to the data, for CI-S1 Pre-Questionnaire, that although one student did not select option (b) Construction Manager, that student wrote on the (e) Other option line construction manager together with interior design. Another student selected both options (b) and (e), and still another student selected two options both (a) and (b). In Section CI-S2, a few students were given back their work to re-take the survey to keep it anonymous. One student response at least varied for the second survey. Therefore only the first survey was considered. Another student selected (a),(b),(d), and for(e) specified-safety inspector-manager.

Post-Questionnaire

For Question 1, it must be noted for CI-S2, although one student answered Yes, and three students answered No, these were not included in the graph as it is a strong possibility that students misunderstood the question or did not remember their response from the first survey.

It must be noted that for CI-S1, one student answered Yes for Question 1, and still answered No for Question 2, while another student in the same Class Section answered Yes for Question 1, and still answered Yes for Question 2; these students' responses were not included in the data for analysis for Question 2. For CI-S2, another student who answered No for Question 1(also

selected Yes for Question 2-result not included for Question 1) indicated that the Pre-Questionnaire was not taken. Furthermore, for Question 2, one of the students who answered No indicated the same. It is a strong possibility that it is not possible that they did not take the Pre-Questionnaire, as all students were accounted for based on the information received from the investigator. For CI-S2 one student initially selected no for Question 1, and crossed out the option, therefore his response was not included for No. Moreover, for Question 3, one student selected two options, possibly because the student had two options (Construction Management, and Agricultural Engineering Tech). Furthermore, for Question 1, one student answered Yes, and also selected Yes for Question 2. The data was therefore not utilized, because the one student who selected the Architect option (also selected other options) for Question 1 in the Pre-Questionnaire may not necessarily have been the one who answered this questionnaire.