Understanding students' learning needs for coaching in Industrial Design

Abstract

Coaching is one of the pillars of Industrial Design education that aims to help students learn how to navigate the design process, become self-regulated learners, and develop their overall professional identity as industrial designers. This study aimed to explore students' experiences with coaching in Challenge/Design-based Learning by answering the following research question: What coaching do students need to develop a) design content knowledge b) self-directed learning c) professional identity? Data were collected via in-depth interviews with 26 students. We found that year of studies and project characteristics influence students' needs for content-related coaching and coaching about self-directed learning. Students appreciated coaching related to professional identity and vision but reported this was happening less frequently. This exploratory study sheds light on the way students experience coaching depending on various individual and project characteristics. Practical recommendations and future directions are discussed.

Extended summary

Coaching is one of the pillars of Industrial Design (ID) education that aims to help students navigate the design process, become self-regulated learners, and develop their overall professional identity. In ID education, the adoption of innovative pedagogies like Design-based learning (DBL) and Challenge-based learning (CBL) is currently increasing, exposing students to open-ended and real-life complex problems (Gomez-Puente et al. 2013). Coaching is central in DBL/CBL, guiding students to develop competencies, set their own goals, and draw plans to build their identity and vision as designers (van Diggelen et al., 2021). Existing literature has focused on coaches' perspectives and practices (e.g., van Diggelen et al., 2021; Adams et al., 2016), but literature on students' needs for coaching and their own experiences have been limited.

In this study, the aim was to explore students' experiences with coaching in CBL/DBL. More specifically, the study aims to answer the following question: What coaching do students in ID need to develop a) content knowledge, b) self-directed learning c) professional identity?

Data were collected via in-depth interviews with students to assess their experiences about coaching within challenge/design-based learning processes. Our study was conducted in the context of ID squad teams, including several projects with a great variety in student characteristics (e.g., bachelor or master level) and project characteristics (group or individual projects, open-ended). Interviews lasted approximately 45-60 minutes, and the participation of students was voluntary. The discussions were audio-recorded with students' permission. All participants were informed via email about the purpose of the study and were invited to participate.

Twenty-six students participated in our study, including sixteen students at bachelor, four at pre-master, and six at a master level. Students were explicitly asked to reflect on their latest project they conducted in the context of their squad and provide examples of coaching they received across different design tasks and processes based on the theoretical framework of Adams (2016). Data were analyzed using content analysis. An iterative process was followed where the two researchers read the transcripts of the interviews several times and followed an open coding approach. After several discussions, they developed a coding framework applied for all interviews.

Results suggest three variables influencing students' coaching experiences: students' level of education (year of studies), their familiarity with the specific educational processes of ID, and whether they were conducting an individual or group project. Year of studies and familiarity with educational

processes of ID played a role in the type and amount of coaching they expected and the different stages of the design process. Regarding the characteristics of the project organization, results indicate differences in the needs of students conducting Final Bachelor Projects (FBP) compared to other bachelor years. FBP is an individual final graduation project in the bachelor. The emphasis on regulating students' learning process (setting priorities, making decisions, and managing time) is apparent while going through the design process.

Regarding coaching on the design content knowledge, students expressed the need for coaching in the form of open critical questions that will help them approach to encourage students to elaborate and explain their thoughts, justify their design decisions and monitor and evaluate their design tasks and actions.

Regarding self-regulated learning, students expressed the need for a) general guidance from coaches to feel more confident they are on the right track, b) more support in decision making, and c) a need to have coaches that are supportive and enthusiastic about their ideas. The need for coaching to support students' self-directed learning was critical in the first two years of the bachelor as well as for students in their pre-master and master level who had not completed their bachelor studies in ID and thus, were less familiar with the design process and the educational practice of ID.

Regarding coaching related to their vision and professional identity, students reported that this kind of coaching was happening less frequently than content-related coaching. Students reported that coaches sharing their career experiences was important. For students' discussing their vision was necessary at the beginning of the project to make sure it was connected with their design product and being nudged to reflect on it during the design process to keep an overview and big picture in mind.

This exploratory study sheds light on the way students experience the coaching depending on various individual and project-related characteristics. Furthermore, it shows the importance of being aware of students' different difficulties according to their level of education and trying to address those. Finally, practical recommendations and future directions are discussed.

References

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