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Encouraging student independence – perspectives on scaffolding in higher education supervision

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Structured abstract

Purpose
The aim of this article is to examine if and how supervisors’ use of two kinds of potential scaffolding means - asking questions and giving instructions - could contribute to fulfilling the scaffolding intention of student independence, in the context of supervision of degree projects within higher education.

Design/methodology/approach
The article is based on qualitative content analysis of two series of supervision meetings between a supervisor and a student in Swedish higher education, comprising a total of eight recorded sessions. The theoretical framework of the article is centered on scaffolding and independent learning, and central concepts are contingency, fading, transfer of responsibility and student independence.

Findings
The analysis shows how the supervisors’ use of questions, and in some respect instructions, could contribute to fulfilling the scaffolding intention of student independence through enabling active participation of both student and supervisor and that the supervision was based on contingency. The analysis further shows that the supervisors tended to become more directive as the work came along, especially when students appeared to be running out of time. The supervision processes did thus not appear to be characterized by fading and transfer of responsibility.

Originality/value
This article contributes to the research field of higher education through discussing student independence as a potential scaffolding intention within supervision of degree projects, based on recorded supervision meetings. Supervision of degree projects is a highly relevant context for discussing scaffolding, since it combines increased student independence with close interaction between student and supervisor for an extended period.
Supervision of degree projects, or undergraduate dissertations, constitutes a rather specific pedagogical arena within higher education, since it is characterized both by expectations on student independence and by a relatively close interaction between student and supervisor (cf. Ekholm, 2012; Light, Cox, & Calkins, 2009; Reid, 1994). In Sweden, as in other countries where students generally write this type of more extensive work during their education, the supervision of degree projects is often based on face to face interaction between a supervisor and one, or possibly two students. Typically, the relationship between student and supervisor continues for an extended period, since degree project courses are regularly scheduled for a half or a full semester. At the same time, students are usually expected to work in a more independent way when writing the degree project, something which in Sweden is communicated in various steering documents, from the Higher Education Ordinance (1993a, 1993b), where the degree project is officially termed “independent project”, to course plans and curricula for specific courses.

This combination of increased student independence and close interaction between student and supervisor for an extended period of time, makes the supervision of degree projects an excellent context for studying the role of scaffolding within higher education. Scaffolding is a concept which for many years has been used frequently within educational research. The term was originally borrowed from the realm of construction, and within the field of education and learning it is used as a metaphor for the support a learner needs in order to finish a task he or she might otherwise not have managed (van de Pol et al 2010:271ff). One of the main principles of scaffolding is that it must comprise active participation from both the teacher and the student and the supervision context should, hypothetically, constitute a very good arena for achieving this.

The aim of this article is to examine if and how supervisors’ use of two kinds of potential scaffolding means - asking questions and giving instructions - could contribute to fulfilling the scaffolding intention of student independence. The structure of the article is as follows: In the first section, the theoretical framework for the article is presented. This is followed by a survey of the field, placing the article in relation to relevant previous studies. In the third and fourth sections, examples from the empirical material are analyzed and discussed. In the fifth and concluding section, the principal findings are summarized and further discussed in relation to the theoretical framework.

**Theoretical framework**

Van de Pol et al (2010:272ff) have done an extensive review of the concept *scaffolding*. They found that this concept has been used in various ways by different scholars, but note three common characteristics in the existing approaches to and understandings of the concept, which they see as necessary components in order for scaffolding to take place. They call the first of these components *contingency* and describe it as the teacher’s ability to adapt or calibrate the support to the individual student. To accomplish this, the student’s current level of competence must be established, something which may be done through formative assessment or monitoring the students’ understanding. The second common and necessary component they have discerned in their review is termed *fading*. This aspect stands for the gradual withdrawal of the teacher over time and is closely connected with the third
characteristic they distinguish – *transfer of responsibility*. As the teacher withdraws from the process, and becomes less active, the student is given gradually increased responsibility for carrying out a particular task. (van de Pol et al., 2010:275)

The framework for scaffolding proposed by van de Pol et al, furthermore builds on the distinction between *tools or means for scaffolding*, in other words *how* scaffolding is taking place, and the *goals or intentions of scaffolding*, in other words *what* is being scaffolded (van de Pol et al., 2010:278). The scaffolding means they introduce include for instance giving a learner feedback on his/her performance, giving hints, instructing a learner what to do, and asking questions (van de Pol et al., 2010:276f). In their discussion they underline that the use of potential scaffolding means, such as asking questions, does not necessarily entail that scaffolding is taking place. Not unless the interaction is based on contingency, fading and transfer of responsibility, as well as on the active participation of both student and teacher.

The scaffolding intentions mentioned in their article include keeping the learning on target and reducing the degrees of freedom, as well as getting a learner interested in the task at hand and keeping a learner motivated, for instance through frustration control (van de Pol et al., 2010:276). A starting point for this article is that student independence could be regarded as a scaffolding intention in the context of supervision of degree projects, according to the definition by van de Pol et al. Both students and supervisors must find a way to handle the increased expectations on student independence which the writing of a degree project normally involves (see Ekholm, 2012; Light et al., 2009).

As has been pointed out by for instance Barkat (2014), independent learning does not primarily comprise students working alone or being given more freedom in an unreflective way. Rather, teachers, or in this case supervisors, could be expected to play an important role in encouraging and enabling student independence. Barkat has discussed this in terms of student ownership, and underlines that such an understanding of independent learning involves teachers taking the role of a facilitator rather than a director (Barkat, 2014:40f). The understanding of student independence as something involving active participation from both student and supervisor, is essential for how it may be regarded as a scaffolding intention according to van de Pol et al’s (2010) definition.

**Survey of the field**

Both research concerned with scaffolding and research concerned with independent learning are of relevance for this article, particularly studies discussing issues connected to higher education and more specifically the supervision of degree projects. Even though a large part of the research on scaffolding and on independent learning has focused on the school context, there are studies which discuss these issues in relation to higher education. Scaffolding within higher education has for instance been examined by Wass et al (2011), who have looked at how conversations with lecturers and peers may allow students within higher education to extend their zone of proximal development when it comes to critical thinking. Other examples are Castillo-Montoya (2018) who has examined the use of lived experiences in scaffolding of college students, and Korhonen et al (2018) who have looked at the role of on-line learning in the scaffolding process of student teachers.
There are also recent studies looking at independent learning in relation to higher education. Such as Cukurova et al (2017) who examined the effectiveness of guided independent learning and unguided independent learning in an undergraduate course, and Lau (2017) whose study aimed to evaluate the effectiveness of an independent learning component within an undergraduate course, through tracking changes in learners’ perceptions. One aspect acknowledged within research on independent learning, which is highly relevant here, is what role teachers, or in this case supervisors, may play in enabling independent learning among students. In addition to being discussed by Barkat (2014), as mentioned above, the importance of the teacher in independent learning has been pointed out by for instance Thoonen et al (2011), Meyer et al (2008) and van Grinsven and Tillema (2006).

There are, furthermore, some studies that have looked at independent learning or scaffolding in relation to supervision of degree projects more specifically. For instance, Ekholm (2012), who analyzed steering documents from a higher education social work program and discussed the role of the supervisor in relation to scaffolding and student independence. Also Knight and Botting (2016) who did a study of management of undergraduate final year research dissertations, where they examined two models of delivery - student-led and academic-led – from a perspective of interest development theory. Independent learning and student independence in relation to supervision of degree projects have also been discussed in previous publications from the larger study this article is based on. Aspects discussed there include for instance supervisors’ understandings of student independence and the role of emotions in supervision interaction (eg Magnusson & Zackariasson, 2018, Zackariasson 2018).

Finally, there are studies which look at the role of asking questions and giving instructions in supervision of degree projects, like Augustsson and Jaldemark (2014) and Eriksson and Gustavsson (2016). These are also of relevance for this article, even though they do not discuss independent learning or scaffolding as such.

Method and material

The empirical material the article is based on has been collected within a multidisciplinary research project, which aims to examine how the concept independence is understood and used in supervision of degree projects. The focus here will be on the supervision of degree projects within teacher education at two universities in Sweden.1 Degree projects are an obligatory requirement of bachelor and master programs in Sweden, as in many other countries adhering to the Bologna declaration, even though the exact forms for such projects may vary between different universities. The degree projects students are required to write within the teacher education programs at the universities the material for this article has been collected from, represent 15 ECTS points, or ten weeks full time studies, and are normally between 30 to 50 pages long. The degree projects are written towards the end of the program.

The material used in this article primarily consists of recorded supervision meetings and two series of supervision meetings will be examined and discussed more closely. Each of these involved a supervisor and a student, and included four meetings, in other words eight documented meetings in total, each lasting 35-60 minutes.2 Both supervisors had a PhD-degree. These two series of supervision meetings were selected as the primary material here
since they involve supervisors within teacher education from two different Swedish universities and comprise recordings of all supervision meetings in each series, from the first to last. This makes them a good foundation for looking not only at similarities and differences between supervision processes, but also at changes and variations in the different phases of the work with each degree project. There were certain guidelines within each program for how the supervision should be organized, but there was also freedom for supervisors and students to decide on the details of the process, such as when they should meet, what they should talk about, if they should have a set agenda or not and what the preparations for each meeting should consist of.

In addition to the recorded supervision meetings, focus group interviews with degree project supervisors at the two universities, will be used to some extent in the analysis. The purpose with including this category of material is to contextualize the recorded supervision interaction through exemplifying how the interviewed supervisors discussed strategies and means for encouraging student independence. In total, four focus group interviews were carried out at the two Swedish universities, each lasting one hour and including 5-6 supervisors.\(^3\)

The material has been analyzed through qualitative content analysis (Schreier, 2012), with a focus on two of the potential scaffolding means mentioned by van de Pol et al: asking questions and giving instructions (van de Pol et al., 2010:276f). These are aspects which, according to research on the field, are central in supervision of degree projects (cf Augustsson & Jaldemark, 2014; Eriksson & Gustavsson, 2016; Light et al., 2009). The role of questions and instructions within supervision of degree projects was also frequently discussed in the focus group interviews done with supervisors within the research project.

In the following, examples from the recorded supervision interaction concerning these two aspects, will be discussed in relation to the theoretical framework. Firstly, through examining how questions were used by the supervisors and if and how this could be said to contribute to fulfilling the scaffolding intention of student independence and secondly through examining the giving of instructions in the same way.

**Challenging through questions**

That questions comprise a significant part of supervision of degree projects, was evident in the focus group interviews done with supervisors, where this was discussed for instance in relation to a Socratic supervisory ideal (Focus groups 20161004, 20160929, 20161104). There were also in the recorded supervision meetings ample examples of how questions may serve several different purposes in the interaction between student and supervisor, which is in line with previous research on the field (eg Augustsson & Jaldemark, 2014; Eriksson & Gustavsson, 2016).\(^4\) At the beginning of the supervision process, questions from the supervisor could for instance often address what the student was planning to do next, while questions from the student often concerned how things could or should be done. Later in the process, questions from the supervisors could also be used as a means for finding out what had happened since they last met the student, which in its turn gave the student a chance to explain how the work was coming along and describe any changes in the project.
What this latter way of using questions could look like is exemplified in the below extract from a supervision meeting between Supervisor R and student S, which took place a few weeks into the course. At this point the student had done her first interview, and during the initial parts of the meeting the supervisor had asked her numerous questions concerning what the interview had been like and what they had talked about. In her responses, the student mentioned children’s learning among the topics that had come up in the interview. This was something the supervisor picked up on:

Supervisor R: Did you only talk about learning in itself or did you…? It’s only learning that is the focus in this, nothing about other things?
Student S: No.
Supervisor R: No?
Student S: Actually, not learning.
Supervisor R: Nothing practical or so at all?
Student S: No, but I did actually ask her a bit about… if she had some… if there was sort of some kind of trick that you could… You know, a sort of simplified version. If there was a trick one could use. And I asked a bit about what happens in her head when she is supposed to communicate to the children.

(Supervision meeting 20161107)

Questions like this, which the supervisor continually asked throughout the supervision meetings, both enabled her as supervisor to get more insight into the student’s experiences and how the work was coming along and gave the student an opportunity to explain what she had learnt so far. In that sense these questions could be said to contribute to ensuring that the supervision was built on contingency and the active participation of the student (cf. van de Pol et al., 2010:274f).

But the quote also exemplifies how questions could serve another important purpose in the supervision interaction, namely to challenge the students’ way of thinking. Earlier parts of the recorded conversation show that the student mentioned children’s learning in her description of the interview. But her response to the supervisor’s questions in the extract above gives the impression that it was a topic she had not thought actively or explicitly about, until it was commented on by the supervisor. The questions from the supervisor thus appeared to encourage the student to think in new ways and expand or develop her understanding. Sometimes this seemed to be the main goal of the questions asked by the supervisors, as in the following extract from a supervision meeting between Supervisor D and Student A:

Supervisor D: But how do you think around this motivation concept?
Student A: (sighs) Well, yeah… Now everything is just spinning around, as soon as I…
   Well what does one think around that? (sighs)
Supervisor D: OK. If I ask the question like this: In relation to your research questions, ehm… what is motivation? How will you…?
Student A: It’s an inner driving… like a driving force that you can get from within, with the help of external things that contribute to that you are driven to do something.
Supervisor D: How will you measure motivation?
Student A: Well… their experience. My seminar leader wrote that it must sort of… The children’s experiences kind of. How they… What they feel motivated by. /…/

Supervisor D: And if you reach their experiences… how do you then know if they have been… if it has had any effect?

Student A: Well, no… right. That’s difficult. /…/

Supervisor D: I’m asking questions to… to understand what will be your, you know, more specific demarcation, definition, aim.

(Supervision meeting 20171024)

Several of the supervisors who participated in the focus group interviews within the project described the use of questions as a good way to encourage student independence, based on that it was thought to stimulate the students’ own thinking. To use questions like this could in other words be regarded as one potential way of contributing to the scaffolding intention of increasing student independence. But the quotes above also indicate that questions such as these are not necessarily easy to handle for the students. When trying to respond to the supervisors’ questions, the students were looking for words, repeating themselves, hesitating, laughing or sighing. Sometimes they gave verbal hints that they found it difficult to answer, as when Student A above states that “everything is spinning”. Similar tendencies were evident also in other parts of the material, when students were trying to answer questions like these. The comment from Supervisor D at the end of the quote above, where he explained why he was asking all those questions, could be interpreted as an awareness of that it may be difficult for students to handle questions which aim towards challenging their thinking.

The students’ apparent difficulty with answering could also be related to that questions like these often contained hints about how they should work or think. That this was something the students did seem to be aware of, to some extent, is indicated for instance in how Student S in the first quote appears to try to come up with an answer that might fit with what the supervisor seems to be asking about. Student A handles a similar difficulty of finding the answer the supervisor appears to be looking for, through referring to comments received at one of the seminars during the course, thus using a lecturer’s authority to strengthen her own. The asking of questions is, in other words, not only a way to create contingency and invite student activity and participation, or to challenge the students’ way of thinking and thereby potentially encouraging independence, but could also be a tool for communicating to the students in what direction they should be headed, without telling them exactly what to do.

You could, you should, you must

The recorded supervision meetings show that, in addition to asking questions, a large part of the interaction consisted of supervisors giving students advice, recommendations and instructions, a tendency that has been noted also in other studies (eg Gustavsson & Eriksson, 2015; Light et al., 2009). The theme was common in the focus group interviews as well, for instance in that the participating supervisors talked about how the ability to handle the advice and recommendations given by the supervisor, in their eyes was as a central aspect of student independence. There were in the focus group interviews also examples of supervisors expressing the view that clear instructions and boundaries for the students, might in fact
increase their independence, since it may be easier to become independent within a more limited field (Focus groups 20161004, 20161104, 20170504). From this perspective, the scaffolding means of giving instructions may be regarded as one potential way to contribute to fulfilling the scaffolding intention of student independence (van de Pol et al., 2010).

Such instructions could be formulated in rather different ways. Sometimes they were phrased as suggestions, as something the student could do but could also choose not to do. Sometimes as recommendations, as something the student should do in order to make the degree project as good as possible. And sometimes the instructions were formulated as something the students must do. The instructions given by the supervisors could concern for instance how the students should organize their work, including aspects like what they should focus on in the interviews, if they should collect more material or not or which literature or theories they could use. It could also concern when and in which order they should do things, as in the following example from Supervisor R and student S:

Student S: What should I have finished by then? /…/ Should I send you what I mentioned before, or should I wait until then or?
Supervisor R: If there is something you want to send me next week you can do that. For example, if we decide that now… You’ll finish the introduction first. The introduction which ends up in aim and research questions. So that’s chapter one – introduction, aim and research questions will be in chapter one or something. So that this part… and when you are done with this it’ll be at least two pages. And there are references in it. And it leads /…/ from the first thing to the second to the third. /…/
Student S: Yes.
Supervisor R: And I want to see that next week.
(Supervision meeting 20161207)

In this extract from the third supervision meeting between Student S and Supervisor R, it is the student asking the questions, while the supervisor gives quite detailed instructions concerning what the student should do next, how it should be done and when it must be finished. Even though the supervisor phrases it as “if we decide”, which could be regarded as an effort to include the student in the process, the whole interaction is mainly based on the supervisor telling the student what to do. Although giving instructions may constitute a scaffolding means, the impression emanating from this particular example is not of scaffolding, since not both the supervisor and the student appear to be active in the process (cf van de Pol et al., 2010:274).

When the advice is given more as directive instructions than as suggestions or recommendations, there is a risk that the role of the student primarily becomes to listen passively and carry out what the supervisor has decided. If the supervisor becomes a director rather than a facilitator, this could potentially diminish the students’ ownership and independence (cf Barkat, 2014). The recorded supervision material shows that the supervisors at times appeared to try to circumvent this risk, for instance through asking the students if they thought the advice they had been given sounded good. Given the asymmetrical relation between supervisor and student, it would, however, demand quite a lot from a student to
disagree openly with the supervisor, or signal that the received advice in their eyes was not particularly useful.

There was no simple pattern in the recorded supervision material for when advice was given as suggestions, recommendations or direct instructions. But the analysis of the two series of supervision meetings that are examined more closely here, shows a tendency among the supervisors to become more directive when it appeared as if the student was running out of time and needed to pick up speed to finish the task within the set time frames. Student A was among those students who managed to finish the work on time and hand in the degree project before the deadline. At the final supervision meeting between Student A and Supervisor D, about a week before the deadline, an almost finished manuscript was discussed. At this meeting, the advice given by the supervisor to a notable extent concerned details and wordings in the text, as is exemplified in the following quote:

Supervisor D: /…/ I think you should remove this introductory… “the meaning of the group”, “the meaning of the teacher”, “the meaning of meaningful contexts”…
Student A: Mhm. I shouldn’t have them there?
Supervisor D: No, you don’t need those discussions there. Here it should be just straightforward what they thought.
Student A: OK. So just present it straight off? /…/
Supervisor D: But what you could include is sort of… You have a comment here… “We can see already now that they preferred using computer games”. You write that it shows that the pupils have great faith in their teacher. /…/ Concerning that particular sentence, faith in the teacher… here I think that you don’t need to determine what that response means.
(Supervision meeting 20171121)

If there at the beginning of the degree project exist many possible choices, and the supervision subsequently may be centered on encouraging the student to take initiatives and make the best, or at least good enough decisions, the options are more limited towards the end of the process. At that point, the available room for action for both student and supervisor is limited by decisions and choices already made, whether or not these turned out to be wise. This could be one reason why the comments from the supervisors at the later meetings could be very specific, as in the above example, and to a greater degree phrased as something the student should or must do, in comparison with at the beginning of the degree project.

In the case of Student S, however, the supervision actually tended to be less directive in the fourth and last supervision meeting, than in the previous, third, meeting, in that the advice from the supervisor more often was formulated as suggestions, rather than as something the student must do. This change could be understood in light of that Student S was among those students who did not manage to finish the degree project within the set time frames, which in her case had several contributing reasons, such as a vacation trip during term time and her part time work taking more time than expected. At the beginning of the final supervision meeting, Supervisor R declared that she saw it as highly unlikely that the student would meet the deadline and hand in the degree project on time, something Student S appeared to agree with in the succeeding conversation. Since the original deadline was deemed not possible to meet,
the time frame once again became more open, which may have contributed to that the supervisor could have a less directive approach in the interaction that then took place. Or, to see it from another perspective, the expanded time frame made it possible to make new choices, which redirected the focus of the supervision interaction from the final product, to the process of getting there.

**Concluding discussion**

Did, then, the supervisors’ use of asking questions and giving instructions contribute to fulfilling the scaffolding intention of student independence?

The examples from the two supervision processes examined more closely in the article, show that both supervisors used means that enabled the supervision to be based on contingency and encouraged active participation from the students, two aspects van de Pol et al. (2010) describe as necessary for scaffolding to take place. They used questions as a way of establishing where the students were at and what had happened since they last met, and as a way of checking in and monitoring if the students had understood what the supervisors were trying to communicate. Their use of questions also encouraged student activity, both through letting the students explain their thoughts and choices, and through giving hints on how the students might proceed, rather than telling them exactly what to do. Their way of phrasing some of their advice as suggestions rather than instructions could also be understood as opening for students to be active in choosing how to act on the advice given.

An ambition from the supervisors to base the supervision on contingency and active participation of the students did, in other words, appear to be present in the two series of supervision meetings that have been analyzed. But what about the question of fading and transferring of responsibility, which van de Pol et al (2010) also see as necessary components in a scaffolding process? One way that these aspects could potentially be manifested in the supervision process, would be through supervisors gradually giving less direct instructions for what the students should or must do, and instead give more hints, recommendations and open suggestions. In that way, students would be given increasingly more freedom and room to make independent choices, which could contribute to fulfilling the fading and transfer of responsibility aspects of the scaffolding intention of student independence.

However, as has been discussed, this was not necessarily the case in the examined supervision interaction. One could even argue that the process was, to some extent, going in the opposite direction, in that the supervisors at the beginning of the degree project period tended to frame their advice as suggestions and hints, thus giving the students quite a lot of freedom of choice, but as the work came along tended to become more directive, giving rather strict instructions on how to organize the work, how to structure the text and even on how to phrase particular sentences. The significance of external factors and demands for these aspects of the scaffolding process, concerning for instance the importance of students finishing on time and writing degree projects of good enough quality, was exemplified in how Supervisor R took a step back and became less directive when it was established that the student she was supervising would not manage to finish the degree project on time. When the time frame issue was removed, the supervision tended to once again be more based on suggestions and recommendations than on direct instructions.
Fading away of a supervisor could be regarded as something desirable that would contribute to the scaffolding intention of student ownership and independence. But it is not indisputable that it would be better if supervisors generally faded away and took on a distinctly withdrawn role during the latter stages of the degree project process. Under ideal conditions and with certain students, who are ambitious and highly capable of doing this kind of assignment, this could obviously work very well. But for other students, who for various reasons need more support to manage the rather difficult and demanding task of writing a degree project of good enough quality within the stipulated time frame, this might mean that they would not manage to finish the job. Supervisors do, through their competence and experience, know much more about the process of writing a degree project, and it could be regarded as not only unproductive, but even as unfair not to let the students in on that knowledge through telling them how they should do things.

With that said, it could still be argued that it would be fruitful for supervisors of degree projects to consider their own stance and attitude towards student independence in relation to the degree project, with regards to how, when and to what extent it would, in fact, be possible for them to fade into the background and transfer more of the responsibility to the student. Doing this might open for more students to reach a higher level of independence in the process of writing a degree project.

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1 The larger research project includes material from two education programs, teacher education and journalism education, at six universities in two countries - Sweden and Russia. Within the project, steering documents like
course plans and curricula from degree project courses have been collected, focus group interviews with supervisors have been carried out, and supervision interaction has been documented through recordings of supervision meetings and collection of e-mail conversations. Ethical guidelines have been followed in all stages of the collection and handling of the material, which among other things means that all participants have given their informed consent to take part in the project, and that the material has been anonymized.

2 All in all, the recorded supervision material from the two Swedish universities consists of 36 recordings done by eight different supervisors. The recordings were done by the supervisors themselves, which means that no outsiders were present in the supervision situations.

3 The recordings of the focus group interviews and of the supervision meetings have been transcribed and relevant parts have been translated to English by the author.

4 Note that a quantitative analysis of the number or type of questions asked has not been done. This would demand a different approach to the material. It is rather complicated to categorize questions, since these may be both direct and indirect and are sometimes expressed only through intonation or the tone of voice.