



Undergraduate Project Supervision: Constructive Strategies for Effective Mentorship

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ABSTRACT

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Undergraduate project supervision is one obligatory component of education in higher institutions that involves assisting students as they conduct personal research and/or practical work geared towards preparing a final document or presentation. Supervision of undergraduate project papers, however, remains a complex task that can hinder the success of supervision; hence, the learning of the students and their career growth go down as well. This study aims to analyse the literature on effective mentorship strategies in undergraduate project supervision. Literature analysis for this study has been carried out with great precision through a systematic search strategy based on some keywords. The literature analysis reveals several constructive strategies for effective mentorship in undergraduate project supervision, namely: (a) establish a regular consultation schedule; (b) guide the preparation of a timeline/Gantt chart; (c) encourage topic selection related to internship or industry needs; (d) avoid last-minute preparations; (e) review work methodically; and (f) adapt supervision to student needs. In conclusion, this study sheds light on how using efficient supervision for undergraduate project management requires active and ready mentorship. For future studies on the present study, it is a good idea to research the long-term effects of mentorship on the students and the way sustained mentorship factors affect the academic results and career

paths of learners over time.

Contribution/Originality: This study contributes to the existing literature regarding effective mentorship strategies in undergraduate project supervision. This study made a valuable contribution to the growing body of knowledge on the importance of tailored mentorship in undergraduate student supervision approaches that are geared towards assisting students with their studies and learning experiences.

1. Introduction

Undergraduate project supervision is one obligatory component of education in higher institutions that involves assisting students as they conduct personal research and/or practical work geared towards preparing a final document or presentation. This process entails different things for teachers or supervisors, such as clashing comprehension of what is to be achieved and communicating and giving feedback within the project period (Bennett et al., 2022). Good supervision anticipates that mentors engage students in the issues underlying such topics as what the students propose to address, analytically as well as conceptually, taking responsibility for the research in psychological term ownership. Furthermore, such supervisors fill an important gap by helping students to acquire key skills, which they are required to possess, such as self-control and timely performances of given activities, by encouraging the use of planner-like tools, e.g., time schedules and Gantt charts (Wang et al., 2022). Finally, undergraduate project supervision is geared towards assisting students with their studies, enhancing the quality of their learning experiences, and helping them cope with future professional challenges by developing the necessary knowledge and skills needed in practice.

Supervision of undergraduate project papers, however, remains a complex task that can hinder the success of supervision; hence, the learning of the students and their career growth go down as well (Emery et al., 2019). Most of the supervisor's face difficulties in maintaining the same level of support and guidance throughout the assessment, which results in no proper appointment schedules, a lack of Gantt charts and planning, and insufficient attention to the scope and relevance of the project topics. Such scenarios may make the students feel that they are lost and unsupported during the entire process of the work project (Monicah, 2020). Further, the habit of people waiting till the last minute to do their work often includes final checks of the document and defending the work plan as well as papers, which contain all the mistakes made by the authors of the college paper. The fact that no supervisory style was designed specifically for a particular student also leaves students feeling lonely and confused. As a result, there is a dire need to study and put into practice ways that are going to improve the supervision phenomenon, improve respect for graduate education, and enhance the quality of the graduates so that they are ready for the work market after completing their studies.

This study presents multiple advantages that may enhance the quality of education for students. When best practices are determined and practised, supervisors can ensure that the students are kept engaged and motivated in a more organised way than ever before. Open communication is an effective mentorship strategy that encourages students to articulate their concerns and seek assistance, leading to higher levels of self-efficacy and project ownership (Doerflinger et al., 2019). In addition, these strategies also enhance the understanding of the student's developmental phases, enabling the mentors to shift their approach towards the needs of each learner. This customised method not only

raises the standard of the end projects but also prepares the students with fundamental abilities like philosophical reasoning, solution delivery, and time management that prove useful in their careers. In the end, however, when such constructive strategies are adopted for the mentorship of students, the academic degree becomes more enriching for all, which facilitates constructive development of the students in executing the various undergraduate projects.

1.1. Research Objectives

This study aims to analyse the literature on effective mentorship strategies in undergraduate project supervision.

2. Literature Review

Project supervision is the conventional understanding of benefiting students and faculty through mentorship. There is enough evidence that support the fact that there are significant effects on student learning experiences, self-efficacy, and overall achievement through proper mentoring techniques. This review presents different works that present effective ways of mentoring undergraduate students during their projects. In addition, effective mentorship leads to academic success and the development of critical skills necessary for the future employment of students, such as critical thinking, problem-solving, and the ability to work collaboratively. When different approaches are applied to mentoring students, life in college includes productive as well as mental welfare, which prepares them well for the intricacies of working life.

First of all, it is important to develop the framework in which the mentor-mentee relationship is structured. Such a program clearly outlines the expectations, roles and responsibilities related to the relationship, which is important for both the mentor and the mentee. Evidence-based practice has shown that the success of mentorship largely depends on the respect expected, boundaries established and the relationship between the mentor and the mentee (Bunin et al., 2023). Furthermore, such structured programmes assist mentees in appearing and gaining their academic and social identities because they offer an environment conducive to participation and teamwork (Sargent & Rienties, 2022). Such a well-organised perspective not only improves the quality of supervision but also engenders a feeling of belonging among the students, which is essential for their performance in their studies (Ravishankar et al., 2024). Last, but not least, it has been stated that a strong and well-orientated framework for the mentor helps the internal growth of the student, along with the continuous nourishment of the dynamic pool of the academic community where the educational hierarchy is given to every contributor.

Additionally, the selection of mentors is also a very important component of effective mentorship. Selecting a mentor with knowledge and professional experience relevant to the students may greatly enhance the learning process. There is evidence that parents and mentors with relevant backgrounds in children tend to create a more constructive atmosphere (Badrie et al., 2023). This is especially important to minorities, as gaps in knowledge and guidance on how to go about academic work can be addressed through mentorship (Hankerson & Williams, 2023). In addition, mentorship programs with a broader perspective on issues of diversity and inclusion offer a fair and egalitarian educational space that accommodates the achievement of all learners (Addy et al., 2023). By making sure that there is a certain degree of diversity and similar past experiences in

the mentors chosen for students, the institutions are going to create a better system of these relations that does not only enhance the development of each student but the academia as a whole.

In addition to well-defined processes and careful selection of mentors, without further level of training and support for the mentors, the effectiveness of the mentorship relationships will be compromised. More successful outcomes are achieved if there are training programs for mentors to acquire skills and knowledge on how best to assist their mentees. Mentoring programs highlight the need for mentors to engage in further training to aid them in performing their tasks more competently (Dunlap et al., 2023). Furthermore, ongoing feedback systems allow for the improvement of the methods used by the mentors to meet the changing demands of the mentees (Abrahamson et al., 2019). This cyclic process not only benefitted the mentees but also added to the 'credits' of the mentors. This said it is always in the long-term framework that continual investment in the formal educators' professional development will give rise to the model of sustainability of mentorship and its applicability to the modern trends in education in which reciprocation of relationships by both the mentor and the mentee will occur.

A further, practical method in implementing effective mentorship is the inclusion of peer mentorship. Peer mentoring, or students as mentors to fellow students, has been reported to be effective in higher education. Peer mentors usually experience similar challenges to those of their mentees, which enhances understanding (Salarvand et al., 2018). This type of mentoring development improves student learning outcomes due to cooperation and sharing of knowledge among the students. Also, peer mentorship helps create a network within these academic programs that boosts the retention and success of the students (Nel et al., 2024). It is therefore imperative for institutions to make provisions for having students as project supervisors to harness the fruits of collaborative learning. It is apparent that by encouraging peer mentoring institutions can improve learning outcomes at the individual level while simultaneously developing the capacity for leadership among the students for their future careers.

Equally important is the influence that technology has on mentorship. Here, digital platforms help to facilitate mentor-mentee relationships, which are vital in the increasing tendency to conduct lessons online. For the convenience of its participants, e-mentoring programs have become very popular because of their global interactions irrespective of distances (Nthontho et al. 2022). They enable objective information and resource sharing, feedback provision and completion of tasks, all of which are necessary for proper mentorship (Olesova & Campbell, 2019). For this reason, organisations ought to devote money to developing technology that will facilitate mentorship programs to provide potential mentors and mentees with the resources that support achieving collaboration. Hence, the education system must stand up in its functionality by adopting such changes for the betterment of our constituents.

In summary, the successful development of an undergraduate project supervision mentorship structure that is beneficial to undergraduates is a complicated mechanism that involves various aspects, including an organisation of frameworks, selection of mentors, training, peer mentorship and use of technology. Given that the institution of higher learning has implemented such measures, it shall create an environment conducive to the educational and individual development of undergraduate students. The evidence suggests that such comprehensive mentorship programs not only benefit the students in their scholarly pursuits but also enhance the academic environment in

institutions of higher learning. Other than assisting students through these mentorship programs, these institutions would also help develop a culture of creativity and teamwork, thus preparing their students for the work environment. Finally, effective investment in mentorship structures improves the experiences of the students as well as the reputation of the institution for customer-focused graduates.

3. Research Methods

Literature analysis for this study has been carried out with great precision through a systematic search strategy based on some keywords. Some of the descriptive keywords included 'undergraduate project supervision', 'mentorship', 'effective strategies', 'academic success', 'peer advising', and 'mentor-mentee relationships', among others. These keywords were utilised in guiding the searches through various databases that included Google Scholar, JSTOR, ERIC, and Scopus for relevant literature in the hope of collecting as much as possible. Sets of inclusion criteria were defined to restrict the sources to peer-reviewed journal articles and books less than ten years old to keep the research relevant to the current standards and theories on mentorship. Additionally, understanding the general context within which the studies were conducted, the emphasis was placed on studies focussing particularly on providing mentorship in the course of undergraduate programs and emphasising supervisory projects. On the other hand, exclusion criteria limited the survey to literature that was relevant to the research theme: the role of mentorship in academia, anglophone literature, and grey literature.

The flow process for the literature analysis, however, began with identifying keywords and conducting a great deal of literature review across the specified databases. The abstracts and titles of the identified studies were examined to look for those studies which were relevant to the objective of the research. The chosen papers were scrutinised by reading the entire text of the article to confirm that they included information related to effective methods of mentorship within the context of undergraduate project supervision. Each study selected as relevant for meta-analysis was carefully reviewed and key themes, findings and recommendations on mentorship were coded and classified with the number and type of comparisons performed determined by the category of analysis employed. This created, in effect, a reflective opportunity at this stage of research where the reviewers examined patterns and strategies of effective mentorship and other aspects considered important. Thereafter, the main findings and conclusions were formulated on how to maximise the effectiveness of the undergraduate project supervision, which constituted the most adequate preparation for that research paper discussion and conclusions. The literature analysis technique assisted in an extensive review of relevant literature and addressed the steps towards developing the best practices of undergraduate mentorship.

4. Results and Discussion

The literature analysis reveals several constructive strategies for effective mentorship in undergraduate project supervision, namely: (a) establish a regular consultation schedule; (b) guide the preparation of a timeline/Gantt chart; (c) encourage topic selection related to internship or industry needs; (d) avoid last-minute preparations; (e) review work methodically; and (f) adapt supervision to student needs.

4.1. Establish a Regular Consultation Schedule

All supervisors must design and adhere to a focused feedback and support consultation schedule that will assist the students all through the work. Regular meetings make communication free, and every concern that students may have during the project is addressed, whose aims are to defend and save the project. Creating a regular consultation schedule is an important tactic for improving the supervision of undergraduate projects in terms of mentorship. Regular meetings are also important in promoting timely interactions, which are beneficial in providing the necessary help and support that helps in the growth of the barrister students. Regular consultations and meetings bring about improvements in students, as such relationships with their mentors/undertakers have been identified to cause confidence boosts and later instil a sense of belonging in the students (Coller et al., 2022). Such interactions also serve an important purpose in establishing a bond of trust where students can share their difficulties and seek solutions, which improves their learning experience. Therefore, to promote and keep the student's interest and enthusiasm in the work and warrant swift and quality completion of the project by the students themselves, the supervisors ought to make sure that regular consultations are held.

In addition, formal mentorship methods whereby periodic meetings are held have been found to improve the quality of the mentoring relationship by streamlining communication and creating a positive context (Skjevik et al., 2020). Such an approach brings advantages not only to students but even equips their mentors without sidelining their learning and career development (Rukundo et al., 2017; Wright et al., 2022). Finally, based on the consultation schedule, one can explain the usefulness of psychosocial mentoring in undergraduate education and the development of the students both in academics and in personal aspects (Onyekaba & Rosdahl, 2022). Regular consultations also provide opportunities for forecasting any possible problems, enhancing both the mentors and students to preempt potential problems instead of reactionary solutions. This constant interaction encourages a robust attitude where ideas are shared and constructive criticism is encouraged as well, making the experience enriching for both parties involved. In the end, structured mentorship with scheduled consultation builds stronger connections among students and mitigates risk further than that; it builds ready-for-challenges students in their academic and career paths.

4.2. Guide the Preparation of a Timeline/Gantt Chart

Supervisors should aid students in the construction of an appropriate schedule or Gantt chart at the commencement of the project. This will enhance the student's understanding of the assignments and the deadlines, thereby managing the different phases of their projects in an organised manner. Their effectiveness in this area, particularly on undergraduate project supervision, can be substantially improved through systematic methods, for instance, Gantt charts, which aid in both planning and tracking assignments. Such diagrams as the Gantt chart outline the sequence of the project in terms of its duration, the actions required for its accomplishment, and the goals set along the way, encouraging respect and accountability on the side of the supervisors and students (Yahya & Hatem, 2023; Jaber et al., 2016; Solís-Carcaño et al., 2017). Such a visual structure assists in establishing chain relations and defining the necessary resources that are essential for the productive performance of tasks (Brčić & Mlinarić, 2018; Mburu et al., 2021). Therefore, Gantt charts complement PowerPoint presentations of projects as they can help not only in organising information but also in encouraging students to

manage schedules on their own, which would develop a sense of responsibility and initiative needed in their studies as well as for other matters.

In addition, it is possible to include mentorship strategies that require communication and feedback as an enhancement to the success of project supervision. This implies that mentorship plays an important role in academic settings and increases the mentee's participation through building networks (Schwerdtle et al., 2017). Concerning onscreen mentorship, constant interaction and quick responses can be facilitated by mentors who are under the impression that such responsiveness is critical in complex project management (Seyed Ali Tabar & Zadhasn, 2023; Bornstein et al., 2019). All in all, Gantt charts along with proper mentoring techniques are helpful to the undergraduate project supervision, which enhances academic achievement and career preparation for the students. As much as this practical intervention assists in the simplification of the project management process, it equally promotes a sense of teamwork where students are encouraged to pursue their academic and career objectives without feeling isolated.

4.3. Encourage Topic Selection Related to Internship or Industry Needs

Supervisors should assist students in choosing project topics appropriate to their internship and industry in general. This relevance makes the project more interesting and makes it possible for this project to have some effect or benefit for the organisation or the industry. Let students choose topics concerning internship or industry needs. This is an important and effective mentorship strategy concerning improving undergraduate project supervision. Research has shown that such alignment of students' projects with practical aspects makes the students more engaged and improves their understanding (Moon et al., 2024). For example, such strategies linking students to any industry-related subject will enrich their research activities in addition to nurturing their confidence in the practical application of theoretical concepts (Cox & Rhodes, 2023). In this manner, students will be able to apply theoretical knowledge to practical work where supervisors will directly engage in making meaningful contributions to the field and enhance the student's employment chances after graduation.

Also, student-collaborative learning provided through project-based mentorship (PBM) can improve the academic background and employability of students (Nanjala et al., 2023; Monarrez et al., 2020). There are constructive methodologies such as the provision of regular feedback that are necessary to clear the way for students in the process of working on their projects, cultivating a healthy learning atmosphere (Mubuuke et al., 2021; Sá et al., 2021). In the end, such strategies achieve their goals of giving students the necessary knowledge and skills for the job market and, on the other hand, self-development of the student (Byars-Winston et al., 2023; Burns, 2020). In addition, mentors can also enable students to link theory to practice by providing project work in which realistic activities are undertaken with the students. Such learning not only encourages students' feeling of competency in their skills but also gives them ascertainable skills that are needed by employers in the competitive labour market today. Thus, in this way, project-based mentorship not only adds value to the education process of the students but also provides an effective way of preparing them for the desired professions in life.

4.4. Avoid Last-Minute Preparations

The supervisors must adopt an offensive plan to shun the last-minute rush to make things happen on a project. When planning and executing projects appropriately, they can help students alleviate stress and enhance the quality of their work in general. Effective supervision of undergraduate projects can invaluablely increase students' achievements by reducing unproductive 'fixing' activities towards the end of the project. Studies suggest that prevention-minded supervision enables students to work actively without waiting till the last minute to finish up their projects, from which they are running around with a clock. Take, for example, [Stappenbelt and Basu \(2019\)](#), who argue that it is essential to have an understanding between the students and their supervisors to ease the last-minute pressure. In the same vein, [Noor et al. \(2023\)](#) underline that to make students self-dependent in a research activity, the attention of the supervisors must be directed towards the cultivation of the core research elements to lessen the last-minute rush to get ready. There is no doubt that if supervisors set deadlines and conducted frequent progress sessions, they would develop a manageable environment where students take on responsibility for their projects instead of completing a series of half-baked and rushed projects due to time constraints.

Furthermore, [Rawson et al. \(2018\)](#) reveal that using web instruments helps eliminate the time lost in finding students' supervisors, allowing for a faster coordination of project activities. This proactive way of approaching students is not only a way to engage students further but also reduces preparation anxiety due to tardy preparations. Thus, if mentorship is in such a structured manner, with the emphasis placed on time planning and regular updating, then the undergraduate research experience may be enhanced greatly ([Seifan et al., 2022](#)). Besides, technology can be embraced in mentorship to facilitate better working relationships by allowing students to interact with prospective mentors even when there are no set desk hours. This flexibility assists in building better ties between students and supervisors as it provides students with a comfortable atmosphere that encourages problem-sharing and seeking help ([Burgess et al., 2018](#)). Eventually, as a result of applying the abovementioned strategies and completing them with modern technological means enhancement, institutions will have the opportunity to embed more effective and intensive changes into the provision of undergraduate research supervisor support.

4.5. Review Work Methodically

While reading any student submission documents, supervisors should be aware of the page-per-page review approach. This form of detailed review leads to specific comments and specific proposals about what can be done better, which facilitates the comprehension of what students do well and what needs to be improved further. Mentoring in undergraduate project supervision is important due to the learning environment, which provides opportunities for development for the students. Supervisors also require regular meetings with the students to review project deadlines, student and mentor responsibilities and expectations, etc. All interactions can greatly enhance the supervisory relationship and the respective project ([Craig et al., 2023](#); [Möller et al., 2021](#)). Additionally, a pedagogical methodology that relies on personal contact, for example, gaining feedback through interviews or organisations, can motivate academic studies supporting other areas, including students' professions ([Hall et al., 2018](#)). At the same time, applying these strategies enables the supervisors to not only increase the effective feedback offered to the students but to create a very constructive

environment whereby the students are prompted to participate in the learning process, which in turn leads to more productive and satisfying projects.

As research shows, an effective supervisor needs to strike a balance between providing direction and allowing students to be self-directed, especially in the case of undergraduates who may require more guidance than their counterparts at the postgraduate level (Giuliano et al. 2022). In addition, creating attachment to the utopia of the academic society improves students' engagement in the process and their internal drive, which plays a major role in the accomplishing of the project (Smith et al., 2020). In conclusion, the contrary 'freestyle' approach normally results in poor educational performance and research outputs by those students, as communication, feedback, and autonomy of the student, embedded into a structured mentorship model, improve the educational performance among undergraduates (Pratt-Adams & Longcroft, 2020; Shanahan et al., 2015). Further, mentorship training for supervisors may assist them in implementing this complex relationship by providing the support required while at the same time promoting student independence. To encourage a culture of excellence in undergraduate research that benefits the individual students and the wider institutional environment, the institutions need to create a collaborative environment where the students feel appreciated and encourage their participation.

4.6. Adapt Supervision to Student Needs

Supervisors need to appreciate the fact that every learner is different and that their approaches to learning vary in some way. This understanding enables supervisors to optimise all the support that each student requires to enable students to emerge in a more respectful atmosphere where they feel appreciated. The submission of undergraduate projects by students requires supervision which is tailored to the varying needs of the students. Studies reveal that supervisors use active teaching techniques whereby the supervisor's actions are responsive to the moment's teaching requirements (Agricola et al., 2021). This being so, there is a need for such flexibility, as some students will need different types of supervisory models to succeed in their research (Hart et al., 2022). Also, improving the conditions of teacher-student interactions would open the doors for teachers and students to be co-participants in the quest for students' academic growth whilst preserving their autonomy (Fogelman, 2021).

Other aspects require planning as well, such as structured feedback processes as students express higher trust and insight as well as respond positively to the feedback given to them in a constructive way (Zackariasson, 2018; Roberts & Seaman, 2018). It facilitates not only the growth of the student's skills but also responds to the student's wish for engagement, meaningfully, with their supervisors on a more frequent basis (Kamphinda & Chilemba, 2019). In the long run, the adjustment of supervision to the specific requirements of every student must bring about the improvement of the overall quality of the undergraduate research experience, which in turn will positively affect the outcome as well as the satisfaction of the students (Seifan et al., 2022). Incorporating practices of regular evaluation of students not only helps build or inculcate a habit of feedback mechanisms but also enhances the sense of responsibility over the content, which makes students more invested in research activities. As the voice of mentorship is changed, so too must the attitude of the supervisors change towards the students concerning their issues to have the students supported in their academic endeavours.

5. Conclusion

In conclusion, this study sheds light on how using efficient supervision for undergraduate project management requires active and ready mentorship. There is, however, still a need for appropriate structural delineations, the proper choice of mentors, and continual nurturing of the mentor-mentee relationship. Drawing from the literature on paternalism and development in mentoring, it can be concluded that implementing positive strategies such as respect, diversity and inclusion, and peer mentoring will improve students' experiences and academic performance. In addition, the adoption of technology in the provision of mentorship services not only helps with the provision of support and sharing of resources but also addresses the changes in the education sector. Given this context, these mechanisms help to overcome the dilemmas that both students and educational institutions face in creating favourable conditions for achieving academic and personal success. Taking all of these into consideration, more emphasis on effective supervisor-student engagement in undergraduate project supervision enhances the academic culture where students can take charge of their education rather than being passive and helpless.

For future studies on the present study, it is a good idea to research the long-term effects of mentorship on the students and the way sustained mentorship factors affect the academic results and career paths of learners over time. Also, the differences in the success of various mentorship approaches in various fields may help in finding ways of optimising mentoring in individual disciplines through different approaches. In future investigations, the assistance of technology to the mentoring processes should be explored, as should how technology can promote the communication and the distribution of materials to and from mentors to their mentees. At the same time, quantitative research about mentoring practices has to be accompanied by in-depth interviews of mentors and students to reveal the subtle difficulties and achievements that could help in better mentoring. Finally, the analysis of mentor stress, for instance, the influence of gender, ethnicity, or social class upon the process of mentorship and its outcomes would allow a better understanding of how to use mentorship in higher education.

Ethics Approval and Consent to Participate

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Conflict of Interest

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