Pharmacy Education (2026) 26(1) 375 - 382
https://doi.org/10.46542/pe.2026.261.375382

PROGRAMME DESCRIPTION

Use of contract grading to enhance student motivation and grading clarity in an Introductory Pharmacy Practice Experience

Kelly Bach[1], Shawn Phillips[2], Jennifer Cerulli[2]

[1] Department of Pharmacy Practice, Binghamton University School of Pharmacy and Pharmaceutical Sciences, United States
[2] Department of Pharmacy Practice, Albany College of Pharmacy and Health Science, New York, United States

Keywords
Contract grading
Experiential education
Learning contract
Pharmacy education

Correspondence
Kelly Bach
Department of Pharmacy Practice
Binghamton University School of Pharmacy and Pharmaceutical Sciences
New York
United States
kbach@binghamton.edu

Abstract

Background: Introductory pharmacy practice experiences (IPPEs) pose assessment and motivation challenges for both preceptors and students. Use of contract grading fosters learning through mutually agreed-upon student-preceptor goals with transparent assessment. The aim was to determine if students perceived that contract grading, when used within a three-week Institutional IPPE experience, provided grading clarity and equity, integrated student experiences, and empowered student learning. **Methods:** Following contract grading implementation, an anonymous survey containing multiple-choice, Likert scale and open-ended questions was emailed to students after completion and final grades submitted for all four rotation sessions. Responses were evaluated with descriptive statistics and qualitative analysis for open-ended responses. **Results:** Survey completion rate was 95% (19/20). Ninety-five percent of students strongly agreed or agreed that contract grading was clear, equitable, incorporated student experiences, and facilitated learning. Strengths were the ability to "choose the goal" and "fully visualise the responsibilities" with "no surprises". Limitations included additional requirements could discourage some students who underestimate their abilities and a lack of emphasis on qualitative student performance. **Conclusion:** Students found that IPPE contract grading provided clear and fair grading, allowing them to set and achieve their learning goals. Future grading contracts, developed with more student input, could help prevent self-underestimation, enable project self-selection, and incorporate qualitative assessments and self-reflection.

Introduction

Pharmacy experiential education preceptors encounter many challenges when attempting to offer quality learning opportunities for students (Kendrick *et al.,* 2021; Minshew *et al.,* 2021; Baumgartner *et al.,* 2022; Giruzzi *et al.,* 2024; Mnatzaganian *et al.,* 2025). Giruzzi and colleagues identified a cyclic pattern of reinforcing behaviours between students and preceptors that leads to challenges during pharmacy practice experiences (Giruzzi *et al.,* 2024). Student behaviours, such as decreased engagement on experiential rotations, lead the preceptor to perceive decreased critical thinking, professionalism, motivation, and quality of work (Baumgartner *et al.,* 2022; Giruzzi *et al.,* 2024). In response, preceptors' behaviours lead to less challenging clinical questions, decreased expectations and increased burnout (Baumgartner *et al.,* 2022; Giruzzi *et al.,* 2024). Overall, this can reduce student involvement and motivation during experiential learning and a reduction in student-preceptor engagement (Minshew *et al.,* 2021; Giruzzi *et al.,* 2024).

Another challenge encountered during experiential learning is grading and assessment. A review of pharmacy experiential grading across the Big Ten Academic Alliance identified that the distribution of grades was consistently skewed, with approximately 97% of all students earning grades of "A" or "B" (Tofade *et al.,* 2018). Fewer than 1% of students earned failing grades (Tofade *et al.,* 2018). At universities that used pass/fail or satisfactory/unsatisfactory grading

systems, approximately 99% of students received passing grades (Tofade *et al.,* 2018). This lack of normal distribution suggests challenges within pharmacy experiential education grading. Students also cite concerns with the equity of assessments in experiential learning (Minshew *et al.,* 2021). Similarly, nurse preceptors consider clinical evaluation and grading to be among the most difficult and ambiguous tasks (Schoolcraft & Delaney, 1982). Potential reasons for experiential grading challenges include: subjectivity in grading; difficulty in discriminating between grades; lack of preceptor confidence in the evaluation method; social pressure placed upon preceptors from students or peers to provide high grades (Wiles & Bishop, 2001; Tofade *et al.,* 2018).

Motivation during learning can be impacted by extrinsic motivations, such as rewards or punishments like grades, or intrinsic motivations, such as the free engagement in the activity out of interest or satisfaction (ten Cate *et al.,* 2011; Orsini *et al.,* 2015). In health profession education, creating an autonomy supportive learning environment, including the incorporation of self-directed learning driven by the student's own goals, can increase motivation to deepen the learning and improve learner performance in both the classroom and experiential setting (Ten Cate *et al.,* 2011; Orsini *et al.,* 2015; Robles, 2015; Orsini *et al.,* 2016; Robinson & Persky, 2020). One method that can be employed to increase self-directed learning autonomy and motivation, while removing the ambiguity associated with assessment methods, is the use of learning contracts (Knowles, 1986; Hardigan, 1994; Robles, 2015; Robinson & Persky, 2020). These contracts, created by students in collaboration with the instructor, define the learning objectives (knowledge, skills, attitudes), the learning strategies to accomplish the objectives, the desired timeframe, what evidence will demonstrate achievement of the objectives (assignments, artifacts of learning), and how learning will be assessed (Knowles, 1986; Robles, 2015; Robinson & Persky, 2020)Grading contracts are a modified form of learning contracts where instructors develop the competencies and objectives at the onset of the learning experience and then enable students to earn specific grades based on their self-selection of the learning activities (Logan *et al.,* 1975; McFarland, 1983; Schoolcraft & Delaney, 1982; Berger & Felkey, 1987). This eases the instructor burden regarding grading, as the students decide the grade they are willing to work for based on the amount and type of work they are willing to undertake, while ensuring every student has acquired and demonstrated the minimum required knowledge and competence for the experience (Logan *et al.,* 1975; McFarland, 1983; Schoolcraft & Delaney, 1982; Berger & Felkey, 1987). This grading method fosters self-directed learning, student motivation, and empowers the student through mutually agreed-upon student-instructor goals while providing transparent assessment (Hardigan, 1994; Logan *et al.,* 1975; McFarland, 1983; Berger & Felkey, 1987).

In pharmacy didactic education, learning contracts have been used in both pharmacotherapy laboratory and pharmacy communication courses (Berger & Felkey, 1987; Hardigan, 1994; Gallimore *et al.,* 2012). While the benefits ascribed to the contract for the laboratory course were not described in the literature, the use of contract grading improved student performance and evaluation in a pharmacy communication course (Berger & Felkey, 1987; Gallimore *et al.,* 2012). Hardigan also investigated the use of learning contracts in a required pharmacy communications course and compared it to traditional grading (Hardigan, 1994). Student questionnaire responses indicated that the learning contract made it clear what they must do to achieve each grade level, involved the student's experiences in the learning process, was a more equitable method of grading, and facilitated the learning process (Hardigan, 1994).

Despite being used for medical, nursing and periodontology student clinical experiences, and a strong rationale for use in pharmacy experiential learning, learning contracts have not been explored in the United States pharmacy experiential education setting (Logan *et al.,* 1975; McFarland, 1983; Schoolcraft & Delaney, 1982; Robles, 2015). While one study reported using learning agreements for preregistration pharmacists in the UK, the description of the agreement was not completely aligned with several of the tenets of contract grading, where students chose the grade they wish to achieve and complete the expectations/deliverables aligned with that grade (Ward *et al.,* 2001). As several key components of learning are prescribed for pharmacy students and preceptors, such as engagement in the required entrustable professional activities (EPAs) and pre-defined timeframes, the use of completely student-driven learning contracts may not be practical. (Accreditation Council for Pharmacy Education, 2025; Medina *et al.,* 2023). However, grading contracts, where students choose from a set of instructor-designed competencies and objectives, may provide a reasonable alternative to improve grading clarity and motivation.

A faculty preceptor within an Institutional Introductory Pharmacy Practice Experience (IPPE) (author KB) encountered difficulties similar to those reported by other preceptors in the literature, such as discriminating between specific grades, feeling grading pressure from students, and lack of engagement by

some students. Inspired by a presentation regarding the use of contract grading in an elective pharmacy didactic course devoted to addiction, alcoholism, and other substance use disorders, contract grading was selected as a potential method to address the challenges related to student motivation and grading ambiguity during an Institutional IPPE. Based upon previous use of contract grading in a pharmacy communications course, we hypothesised that students would perceive contract grading positively with regard to grading clarity and equity, integration of student experiences, facilitation and empowerment of student learning during a three-week Institutional IPPE experience (Hardigan, 1994). The specific aims of this single-site, single-preceptor pilot study were to (1) assess student perceptions of use of contract grading within an experiential education rotation and (2) identify areas for refinement of the grading framework.

Description of innovation

Subjects

Albany College of Pharmacy and Health Sciences (ACPHS) Institutional IPPE summer experiences are three weeks (120 hours) in duration and follow the second professional year (P2). Typically, students are graded using the college standard evaluation tool, based upon specific EPAs, where preceptors grade the rotation using a rubric describing the criteria for pass plus, pass, pass with reservation, and fail (conventional grading) (Medina *et al.,* 2023). The latter two grades require remediation of the experience. During summer 2023, the faculty preceptor (author KB) implemented contract grading where students selected their grade for four rotation sessions with five students each rotation session, for a total sample of 20 students. This cohort of students was previously exposed to the conventional preceptor-selected grading method during their community IPPE rotation the prior summer and were not with the same preceptor nor at the same location. The project received exempt status due to exemption 45 CFR 46.104 (d)(1) and (2) from ACPHS Institutional Review Board (protocol 24-005) (45 CFR 46.104 -- Exempt Research., n.d).

Contract grading agreement

Using the college's required Institutional IPPE objectives and EPAs in combination with preceptor-assigned rotation activities, a contract grading rubric was developed which identified the minimum competency requirements for pass and the additional expectations for pass plus (Table I).

Table I: Grade contract for institutional IPPE Summer 2023

	Pass Plus	Pass	Pass with Reservations	Fail
Rotation assignments	Completes all assignment requirements: ● Workbook ● Adverse Drug Reactions-10 ● Journal Club ● Informal Patient Case and Medication Review ● Infographic ● Self-Directed Continuous Professional Development ● Success Skills ● Topic Discussion	Completes all assignment requirements: ● Workbook ● Adverse Drug Reactions-5 ● Journal Club ● Informal Patient Case and Medication Review ● Infographic	Does not complete one assignment requirements: ● Workbook ● Adverse Drug Reactions-5 ● Journal Club ● Informal Patient Case and Medication Review ● Infographic	Does not complete more than one assignment requirements: ● Workbook ● Adverse Drug Reactions-5 ● Journal Club ● Informal Patient Case and Medication Review ● Infographic
Attendance (on time and does not leave)	1 warning	2 warnings	3 warnings	4 warnings
Professionalism (according to group contract from first day of rotation)	0 warnings	1 warning	2 warnings	3 warnings

I plan on earning a grade of:
_____ Pass Plus
_____ Pass
_____ Pass with Reservations
_____ Fail

Signature/Name: _____
Date: _____
*Note: This grade contract can be altered at any time up until the midpoint evaluation by submitting a new copy to me via email.

The contract grading rubric was composed of rotation assignments, attendance, and professionalism. With regard to rotation assignments, one difference between pass and pass plus was the number of patients students were assigned by the preceptor to review and classify adverse drug reactions. In addition to the required rotation assignments, the attendance and professionalism expectations as defined in the college IPPE manual were included in the grading contract. Students were oriented to the syllabus and contract grading information on the first day of the learning experience as recommended in the literature (Knowles, 1986; Berger & Felkey, 1987). Students chose their desired grade (pass plus, pass) based upon the discussion and materials provided and were given the option to alter their desired grade at any time prior to their midpoint evaluation.

Student perspective survey

To gather student feedback on the use of contract grading, an anonymous survey (Appendix A) was emailed by the faculty preceptor (author KB) to students after completion and final grades were submitted for all four Institutional IPPE rotation sessions. The survey included five-Likert scale, two dichotomous, and fiveopen-ended questions. Four 5-point Likert scale (strongly agree to strongly disagree) questions, related to the four hypotheses selected from the literature, assessed if contract grading: makes clear to students what they must do to achieve each grade, is an equitable method of grading, involves the student's experiences in the learning process, and facilitates the learning process (Hardigan, 1994). Students rated their overall satisfaction with contract grading on a ten-point Likert scale (extremely unsatisfied to extremely satisfied). Students responded if they felt contract grading empowered their learning (yes/no), and if they completed this rotation again, what method of grading they would prefer (contract grading or conventional grading). Students were asked the number of additional rotation assignments they felt should be required for pass plus (compared to pass) and what other assignments they would recommend. Open-ended questions asked students to state both the strengths and limitations of contract grading, and why they selected their particular grade.

Descriptive statistics were used to assess quantitative data. To summarise student feedback regarding contract grading, investigators coded three of the open-ended question responses using memoing to create an initial list of preliminary themes for the strengths, limitations, and rationale for grade selection. This was followed by discussion designed to calibrate the coding themes. Once the coding themes were defined, one investigator re-coded all the open-ended responses (author JC). The final coding scheme included five themes for each of the three areas: student-perceived strengths of contract grading utilisation, potential limitations of use and rationale for grade selection.

Evaluation findings

At the onset of the rotation, among the 20 students, 10 (50%) selected pass and 10 (50%) selected pass plus, with one student altering their grade prior to the midpoint evaluation (changing from pass plus to pass). All (100%) students achieved the grade they initially aimed for, except for the one student who altered their targeted grade during the rotation, who ultimately achieved that grade.

Student perspective

After final grades were submitted and following completion of all four rotation sessions, 19 (95%) students completed the survey. All (100%) students agreed or strongly agreed that the grading criteria were clear, equitable, and facilitated the learning process (Figure 1).

Only one (5%) student disagreed with the statement "grading involved the student's experiences in the learning process". When students rated their overall satisfaction of contract grading on a 10-point Likert scale the median was nine, mode was ten, and range was 5-10. All (100%) students indicated that contract grading made them feel empowered in their experiential learning. If students completed this rotation again, 18 (95%) students would prefer contract grading over the conventional grading method. When asked how many additional assignments should be required for a pass plus, six (32%) students recommended two assignments, 12 (63%) students recommended three assignments, and one (5%) student recommended four assignments. When asked for additional types of assignments they would suggest, three (16%) students provided suggestions including topic discussions, journal club, medication charts, and reflections on their learning experiences.

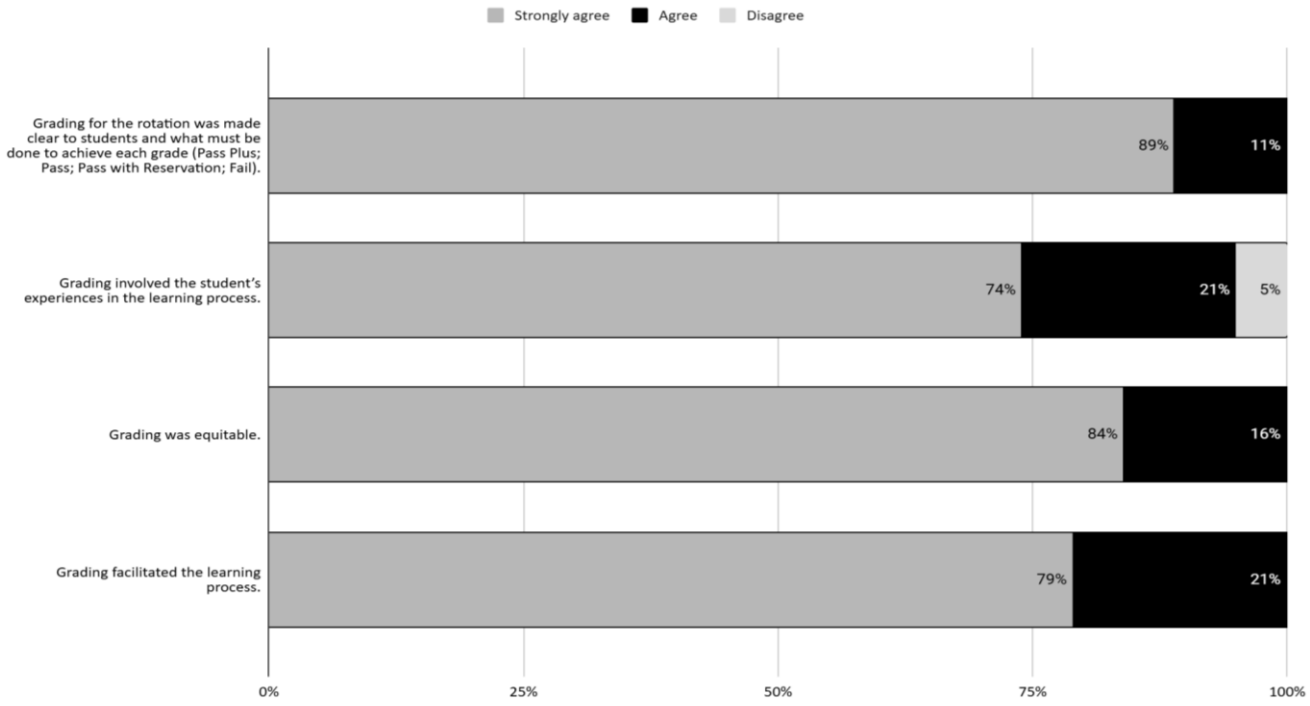

Figure 1: Student responses to the four hypotheses regarding contract grading from Hardigan displayed as percent of total responses (n = 19).

Student perspective: Strengths of contract grading

During analysis of the 19 students' open-ended responses regarding the strengths of contract grading, five themes emerged: transparency and clarity, empowerment and autonomy, individualisation and flexibility, motivation and goal setting, and the ability to focus on learning over grade anxiety. Ten students commented that they "enjoyed knowing", "fully visualizing" and "clearly understanding" the expectations and responsibilities to earn specific grades with "no surprises." Five students' comments centered around their ability to know and choose their grade and work toward it which "allowed students to have power over their grade." Five comments centered around individualisation with the ability to "set a goal and work toward it." This enabled students on an "individual basis to determine what they wanted out of the rotation" to tailor their efforts to align with their interests and "according to their own strengths." Three comments indicated that the structure encouraged students to stay motivated by setting clear individualised objectives from the start allowing them to work toward their chosen grade. One student commented that the contract "alleviated the worry of the grade you would be receiving throughout the rotation allowing focus to be on learning."

Student perspective: Limitations of contract grading

While five students indicated there were no limitations to the use of contract grading they could articulate, the remaining 14 student comments yielded five themes for faculty to carefully consider: focus on quantity of assignments over quality of student performance, dissuasion or deterrence, perceived lack of flexibility, potential for competition, and unclear progress monitoring. Four students felt the qualitative aspect of student performance was not fully taken into account or weighted as much, such as the effort put into various assignments, their enthusiasm for clinical experiences, the improvements students had made during the rotation, or "our efforts and involvement during the clinical experiences." Thus, feeling that contract grading heavily emphasised completing specific assignments. Two students felt the contract could dissuade them from selecting a pass plus. One student comment related to the workload noting "when it's all on paper and you see how much extra stuff you have to complete, it can dissuade you from reaching the pass plus." However, another noted a potential unexpected deterrent that "some people may underestimate themselves." Two students recommended more flexibility such as a menu of assignments to enable students to choose based on alignment with their interests and/or learning styles. Interestingly, two students indicated that contract grading could infuse the rotation with an undertone of competition by

stating "I think it may cause competition instead of collaboration" and difficulty "keeping track of what projects you need to do versus the peers around you." Finally, two students felt more clarity was needed to determine if they were on track for a pass plus along with up front knowledge regarding the estimated time to complete the assignments.

Student perspective: Rationale for contract grade selected

The 19 (100%) students had diverse reasons for selecting their grade which fell into five themes: comfort with pass, self-motivation and challenge, time management and workload considerations, impact of extra assignments on learning (enhancement versus detraction). While two students stated they were comfortable with the pass as that was all that was required, six students selected the higher grade to challenge themselves, to get the most out of the experience and to "… push myself to do more than the bare minimum". For five students, time constraints drove them to select their grade as they considered their existing responsibilities, such as personal schedules, paid employment obligations and other summer courses which impacted their time. "I chose pass instead of pass plus because it worked with my schedule and my responsibility in a way that I was able to get everything done in a timely manner." Four students commented they felt the extra assignments would enhance their learning opportunities to get the most out of the rotation. On the contrary, two students commented they felt the extra assignments could detract from their learning. For example, if I "… wanted to revisit a topic that had come up that day, I wanted to spend the time that I had outside of rotation and work refining those immediate concerns" (versus doing the additional pass plus assignments).

Reflections on contract grading use

During this first exploration of contract grading, a form of learning contracts, institutional IPPE students' perceived grading clarity and equity, engagement to facilitate learning, and empowering student learning. As these hypotheses, abstracted from previous literature, were present in the Likert scale survey questions, the open-ended responses naturally aligned with them (Hardigan, 1994). While a larger sample with a comparator arm would be required to determine if contract grading is preferred to conventional grading, student responses provided valuable insight into the strengths and areas of improvement for the grading contract. The concerns raised by the students regarding contract grading included lack of flexibility, limited emphasis on qualitative performance, workload, self-underestimation, and competition provide important considerations for preceptors wishing to implement contract grading in experiential learning.

Within a learning contract, students define their learning activities and objectives allowing for flexibility and increased student autonomy (Kruse & Barger, 1982; Knowles, 1986; Ward *et al.,* 2001). During this implementation of contract grading, students chose their desired grade based on predefined learning activities that must be completed lowering the perceived flexibility. To improve autonomy, future iterations could incorporate a menu of the students' suggested learning opportunities aligned with the schools targeted required EPAs in addition to a student-defined project or activity.

Our grading contract focused mainly on the activities to be accomplished for a specific grade. This may have led to students sensing a focus on the quantity of assignments rather than a qualitative assessment of their performance. While all assignments were evaluated by the preceptor and deemed to meet minimum standards, grading rubrics were not provided which students noted as a limitation. To render the grading process more transparent and inclusive of a qualitative component, sharing grading rubrics for each assignment in addition to having a portion of the grade devoted to evaluating students' overall engagement through direct observation by the preceptor, and/or feedback gathered from collaborating pharmacists, could enhance the process. In addition, incorporating the students' suggestion regarding self-reflections of learning could contribute to their development as lifelong learners (Conte, 2015).

The student's dissuasion from selecting pass plus due to potential workload or underestimating their own ability diminishes the purpose of learning contracts to empower and motivate the student. This connects to the literature that students' initial reaction may be confusion and/or negativity to contract grading due to students being unfamiliar with this method of assessment (Berger & Felkey, 1987; Ward et al., 2001). In future iterations, providing students with an estimated time to complete each assignment could address potential workload concerns enabling a more informed decision when selecting their grade. To minimize the potential for students to underestimate themselves, additional one-on-one dialogue with students at the beginning of the rotation and prior to the midpoint could bolster student self-confidence in their abilities as they select their grade.

While students perceived contract grading favorably in this pilot study, it is important to acknowledge its limitations. The study was conducted as a single center, single preceptor study, with a small cohort of pharmacy

students which potentially limits the generalisability of the findings to other experiential education rotations. It is possible the findings are due to the rotation site, the preceptor, or the overall educational experience rather than the contract grading system itself. Additionally, the study lacked a comparator arm limiting our ability to assess whether students preferred contract grading relative to conventional grading. As a result, our findings reflect perception of contract grading in isolation rather than comparative preferences. Response bias inherent to survey design may have affected how students responded to Likert scale items, potentially skewing the results towards the scale's extremes. Another limitation is the reliance on post-rotation self-reported data which may introduce recall bias. Lastly, while grades were finalised prior to survey completion, students' familiarity with the preceptor may have potentially led to more favorable responses.

Further research is needed to validate and extend the current findings of this study due to small cohort of pharmacy students with one preceptor and the anonymous nature of the survey. Due to students perceiving competition as one of the limitations to contract grading, it would be beneficial to further explore why students felt contract grading led to increased competition as the individual nature of learning contracts, should minimise competition for grades facilitating a supportive learning environment (Zucker, *et al.,* 1978; Kruse & Barger, 1982). While one may expect students to gravitate toward choosing the highest grade, which was the case in prior research, only ten10 (50%) of students selected pass plus, the highest grade (Berger & Felkey, 1987). With diverse reasons provided for why students selected their grade (weighing whether to challenge oneself, being comfortable with a pass, determining how the extra assignments would enhance or detract from learning, personal time constraints) further exploration into grade selection is warranted.

Conclusion

In this preliminary exploration of Institutional IPPE students perceptions, contract grading was an effective tool to enhance motivation for learning while ensuring grading clarity and equity for students. Future enhancements to contract grading in experiential education may include incorporating qualitative performance assessment methods, rubrics to assess assignment quality, learning reflections and flexible assignment options to enhance student autonomy. While students reported positive perceptions of contract during an Institutional IPPE, further research across multiple sites and preceptors is needed to evaluate its broader applicability and effectiveness.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Acknowledgement

The authors wish to thank Dr. Edward M. DeSimone for his presentation materials on contract grading from the AACP Pharmacy Education Meeting 2021.

Conflict of interest

The authors have no conflict of interest.

Ethics Approval and Informed Consent

This study was deemed exempt by Albany College of Pharmacy and Health Sciences Institutional Review Board (protocol 24-005).

References

Accreditation Council for Pharmacy Education. (2025). *Accreditation standards and key elements for the professional programme in pharmacy leading to the doctor of pharmacy degree* ("Standards 2025"). https://www.acpe-accredit.org/wp-content/uploads/ACPEStandards2025.pdf

Baumgartner, L., Roller, L., LeVay, M., Trinh, J., & Morris, A. (2022). Burnout among pharmacy preceptors in Northern California. *American Journal of Pharmaceutical Education,* **86**(8), ajpe8759. https://doi.org/10.5688/ajpe8759

Berger, B. A., & Felkey, B. G. (1987). Use of contract grading in a required pharmacy communications course. *American Journal of Pharmaceutical Education*, **51**(2), 121–126.

Conte, N. (2015). Preceptors guidance in students' self-reflection: An invaluable contribution. *Currents in Pharmacy Teaching and Learning*, **7**(3), 395–404. https://doi.org/10.1016/j.cptl.2014.12.013

Gallimore, C., Barnett, S. G., Porter, A. L., & Kopacek, K. J. (2012). Evaluation of pharmacotherapy laboratory revisions implemented to reduce cost. *American Journal of*

Pharmaceutical Education, **76**(4), 67. https://doi.org/10.5688/ajpe76467

Giruzzi, M. E., Fuller, K. A., Dryden, K. L., Hazen, M. R., & Robinson, J. D. (2024). A cycle of reinforcing challenges and ideas for action in experiential settings. *American Journal of Pharmaceutical Education*, **88**(6), 100710. https://doi.org/10.1016/j.ajpe.2024.100710

Hardigan, P. (1994). Investigation of learning contracts in pharmaceutical education. *American Journal of Pharmaceutical Education*, **58**(4), 386–390. https://doi.org/10.1016/S0002-9459(24)04226-8

Kendrick, J., Beauchesne, A., Lee, Y. V., Corrigan, S., & Carr, R. (2021). Conflict between pharmacy preceptors and pharmacy learners in experiential education. *The Canadian Journal of Hospital Pharmacy*, **74**(1), 36–42.

Knowles, M.S. (1986). *Using learning contracts* (First edition). Jossey-Bass.

Kruse, L. C., & Barger, D. M. (1982). Development and implementation of a contract grading system. *The Journal of Nursing Education*, **21**(5), 31–37. https://doi.org/10.3928/0148-4834-19820501-07

Logan, N. S., Lainson, P. A., Lewis, L. A., & Bergquist, J. J. (1975). An application of contract grading. *Journal of Dental Education*, **39**(10), 666–669.

McFarland, M. B. (1983). Contract grading: An alternative for faculty and students. *Nurse Educator*, **8**(4), 3–6. https://doi.org/10.1097/00006223-198300840-00020

Medina, M. S., Farland, M. Z., Conry, J. M., Culhane, N., Kennedy, D. R., Lockman, K., Malcom, D. R., Mirzaian, E., Vyas, D., Stolte, S., Steinkopf, M., & Ragucci, K. R. (2023).The AACP Academic Affairs Committee's Final 2022 Curricular Outcomes and Entrustable Professional Activities (COEPA) for Pharmacy Graduates to Replace 2013 CAPE and 2016 EPAs. *American Journal of Pharmaceutical Education*, **87**(8), 100558. https://doi.org/10.1016/j.ajpe.2023.100558

Minshew, L. M., Williams, C. R., Dinkins, M. M., Haltom, W. R., Brown, K. P. D., & McLaughlin, J. E. (2021). Developing a process to manage challenges encountered by experiential education administrators. *Currents in Pharmacy Teaching and Learning*, **13**(4), 318–326. https://doi.org/10.1016/j.cptl.2020.11.003

Mnatzaganian, C. L., Gibson, C. M., Kipper, L., Williams, C. R., & Cat, T. B. (2025). The preceptors' toolkit for working with struggling pharmacy students. *Pharmacy*, **13**(3), 66. https://doi.org/10.3390/pharmacy13030066

Orsini, C., Evans, P., & Jerez, O. (2015). How to encourage intrinsic motivation in the clinical teaching environment?: A systematic review from the self-determination theory. *Journal of Educational Evaluation for Health Professions*, **12**, 8. https://doi.org/10.3352/jeehp.2015.12.8

Orsini, C., Evans, P., Binnie, V., Ledezma, P., & Fuentes, F. (2016). Encouraging intrinsic motivation in the clinical setting: Teachers' perspectives from the self-determination theory. *European Journal of Dental Education*, **20**(2), 102–111. https://doi.org/10.1111/eje.12147

Robinson, J. D., & Persky, A. M. (2020). Developing self-directed learners. *American Journal of Pharmaceutical Education*, **84**(3), 847512. https://doi.org/10.5688/ajpe847512

Robles J. (2015). Student learning contracts: Considerations for implementation in pharmacy experiential experiences. *Journal of Pharmaceutical Care & Health Systems*, **2**(3). https://doi.org/10.4172/2376-0419.1000135

Schoolcraft, V., & Delaney, C. (1982). Contract grading in clinical evaluation. *The Journal of Nursing Education*, **21**(1), 6–14.

Ten Cate, Th. J., Kusurkar, R. A., & Williams, G. C. (2011). How self-determination theory can assist our understanding of the teaching and learning processes in medical education. AMEE Guide No. 59. *Medical Teacher*, **33**(12), 961–973. (70165518). https://doi.org/10.3109/0142159X.2011.595435

Tofade, T., Shepler, B. M., Feudo, D. M., Kieser, M. A., Jolowsky, C., Miller, M. L., Sullivan, D., Vos, S. S., Brueckl, M., & Walker, P. C. (2018). Grading trends and evaluation of student performance across advanced pharmacy practice experiences (APPE) in the Big Ten Academic Alliance (The GRAPPES study). *Currents in Pharmacy Teaching and Learning*, **10**(11), 1466–1473. https://doi.org/10.1016/j.cptl.2018.08.004

Ward, A., O'Neill, R., Kostrzewski, A., & Dhillon, S. (2001). Using learning agreements in a competency-based training programme: Introduction and evaluation by preregistration pharmacists. *Pharmacy Education*, **1**(2), 91–105. https://pharmacyeducation.fip.org/pharmacyeducation/article/view/6

Wiles, L. L., & Bishop, J. F. (2001). Clinical performance appraisal: Renewing graded clinical experiences. *The Journal of Nursing Education*, **40**(1), 37–39. https://doi.org/10.3928/0148-4834-20010101-09

Zucker, S. B., Odom, J. G., Cheney, H. G., & Fretwell, L. D. (1978). Contract grading in community dentistry. *Journal of Dental Education*, **42**(12), 668–670.