Making Soft Skills Trackable: Designing Soft Skill Assessment Strategies for STEM Graduate Students

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Executive Summary

The rising prominence of artificial intelligence and its ability to handle technical tasks have made soft skills an increasingly important commodity for those entering into the job market. The importance of soft skills in the contemporary job market is recognized by many; however, many college students don't know how to develop these crucial soft skills. When Salesforce posed its question "Identify the key barriers to university career services in tracking students' soft skills and linking them to in-demand jobs" we found it relevant to this critical issue. Because soft skills are developed in a less linear manner than technical skills, they are harder to evaluate in a quantifiable manner, making it more difficult to track how a student's soft skills evolve over time. We chose to focus on the 'tracking' aspect of Salesforce's question as providing a quantifiable framework to measure soft skills and their growth over time could give students greater insight on their current proficiency with soft skills and how they can further improve them to meet the evolving demands of the job market. We developed a "How Might We" statement that asked "How might we develop strategies that enable career services at universities to identify, quantify and track the growth and development of STEM graduate students' soft skills?".

Having established our framing research question and identified our key stakeholder groups – STEM graduate students, career advisors, and hiring managers – on to conducting primary research through interviews with members of each respective stakeholder group. We conducted seven interviews: four with STEM graduate students, two with career advisors, and one hiring manager. Notable findings from interviews were that many students did not know how to intentionally develop their soft skills; that career advisors assess students' soft skills by comparing them against sample behaviors and examples; and that hiring managers have always considered soft skills important, but even more so now due to the increasing prevalence of AI. Utilizing these insights we created an affinity wall to identify patterns and broader themes that emerged from our research. We found that students often develop their soft skills unintentionally through practicing them in situations that occur in daily life; students desire a tool that would give them specific, personalized feedback that would outline the next steps and target skills they could improve on; and that both students and career advisors have concerns on the potential biases an assessment tool could possess.

Based on the key themes identified in our data, we brainstormed potential solutions that would address the user needs we discovered and evaluated them with a Pugh chart against five criteria. Our ideal solution would provide users with specific, actionable feedback; be credible in the eyes of employers; sustain student engagement; reduce biases when evaluating; and be cost-effective to implement. After assessing several options, we determined that an experiential learning tool would best meet the needs of our stakeholders. We devised an experiential learning tool that would be embedded in Salesforce's Education cloud and would provide students with real-world scenarios to demonstrate their soft skills. After completing the scenario, the tool will evaluate the

student's performance and provide personalized feedback on the proficiency of their demonstrated skills and specific feedback on how they could further improve them. A record of student's evaluations and their recommended next steps would be kept to help users track how their skills have developed over time. We found this solution would provide actionable feedback, credible assessments, engage students, mitigate biases, making it the ideal option for Salesforce and higher education institutions.

Introduction

Nowadays, soft skills are considered essential in workplaces. Horváthová et al. (2022) stated that digital and interpersonal skills are considered to be the most crucial quality of a candidate by employers in the future (by 2030). Similarly, Poláková et al. (2023) showed that soft skills, particularly interpersonal abilities, are consistently in high demand among employers. LinkedIn's 2024 Global Talent Trends study further supports that 69% of executives in the United States "plan to prioritize hiring candidates with soft skills" in the upcoming year (*Global Talent Trends*, 2024). Thus, developing soft skills is crucial to success in the workplace.

However, effective development requires measurement. Without a reliable way to quantify soft skills, no one can track growth or determine whether learning efforts are successful. As the goal of career development offices (CDO) is to help student success, they must help students develop not only their technical skills, but also soft skills. To do so effectively, they need credible ways to assess soft skills. Otherwise, their guidance may fall out of sync with job market needs. However, unlike technical skills, soft skills are much harder to evaluate in a quantifiable way.

Our interviews also revealed challenges such as low student engagement and overextended advising staff, which make soft skill assessment even harder for CDO. Student interviewees point out that they are unwilling to spend significant time developing their soft skills, while CDO advisors noted that current systems do not integrate soft skill tracking. Moreover, CDO advisors do not have enough time or financial resources to develop a new system that would support students' growth in soft skills. These structural constraints highlight a key gap: even if CDO advisors recognize the importance of soft skills, they lack a practical system to measure or support them at scale.

To address this problem, we aim to create a tool within Salesforce's Education Cloud platform that provides students with practice soft skill scenarios to evaluate their skills, provide personalized and actionable feedback on how to improve them, and measure their growth over time. Such a tool would enable career services to identify, quantify, and track students' soft skill development while empowering students to better understand and improve their own abilities.

Because different soft skills require distinct assessment methods (Colledani et al., 2024), and students across majors exhibit different soft skill needs, our project focuses specifically on STEM graduate students to provide more targeted and meaningful measurement strategies. In addition, a lack of soft skills have become barriers for IT students entering the employment workforce (Mohammed & Ozdamli, 2024), which further reinforces the need for discipline-specific measurement strategies.

Overall, acknowledging the limitations in the soft skills development and the importance of soft skills in the workspace, we aim to identify opportunities, barriers, and develop practical tools for

CDO to further support in strengthening students' soft skills while also helping students gain deeper awareness of their own capabilities and ultimately help students to succeed in their career.

Problem Statement

As soft skills are becoming increasingly important for entry-level workers and due to the current limitations in the existing ways to measure soft skills, Career advisors need a method to identify, quantify, and track the growth of a student's soft skills. Therefore, our project centers on the following design question: How might we develop strategies that enable career services at universities to identify, quantify and track the growth and development of STEM graduate students' soft skills?

Process/Methods

For our data collection, we first conducted seven semi-structured interviews either in person or via Zoom: four with students, two with Career Development Office (CDO) advisors, and one with a hiring manager. These interviews were useful to understand the students' perspectives on soft skills, the advisors' barriers, and the employers' perspective on skills when hiring.

Interviewing students allowed us to explore how they define soft skills, how much value they place on them, and how willing they are to invest time in developing or measuring these skills. In addition, as student engagement is essential for effective soft skill assessment strategies, understanding what motivates or discourages student participation is also essential.

Through interviewing CDO, we sought to understand what their current method is in recognizing students' soft skills. Since our project aims to support the CDO in developing new soft skill measurement strategies, we also wanted to understand their expectations for such a tool, the types of soft skill related information they need, and the constraints they face in terms of time, staffing, and others.

Interviewing a hiring manager allowed us to incorporate the employer perspective. This helped us identify which soft skills are most critical for new entry-level workers, as well as the common gaps employers observe among recent graduates.

Together, all these interviewee's answers allowed us to build a comprehensive understanding of stakeholder expectations and their willingness to use or support a soft skill measurement tool.

Then, after conducting all the interviews, we structured and organized all our interviews into an affinity wall using Miro. We categorized insights we received into thematic groups: definitions of soft skills, reference materials, students' time limitations, the need for and value of individualized action feedback, and others. These clusters guided the refinement of our design direction. In situations where multiple interviews featured the same themes, or several distinct groups brought up the same themes, those themes were treated as meaningful. For example, both students and CDO advisors expressed a preference for integrating soft skill measurement into tools they already use, which shifted our focus away from creating a standalone platform and toward embedding the solution into an existing system.

Additionally, based on feedback from our classmates and professors, we shifted our desired outcome from creating a specific tool to developing broader strategies. This change allows us to avoid limiting ourselves to a single solution and instead explore a range of approaches that could help the CDO track students' soft skill development.

Outside the interviews, we also tried to broaden our understanding with other data sources. These include reviewing academic and industry literature on employers' gaps and expectations, text analysis of LinkedIn postings, a survey examining students' soft skill development and the resources that support it, and current approaches in measuring soft skills. These sources helped us contextualize our interview findings within broader labor-market trends and evaluate which existing approaches could inform the strategies we aim to develop.

Together with the interviews and the secondary sources, we are able to build a comprehensive foundation for understanding stakeholder needs and constraints. By refining our approach and expanding our ideal result based on emerging insights, we ensured that our methods remained aligned with our "How Might We" question and connected to the stakeholders.

Findings / Insights

Interview Insights from Students

Unintentional Soft Skill Development We found from interviews that students typically develop soft skills "unintentionally" through everyday interactions rather than through structured training. Multiple respondents emphasized that opportunities to exercise soft skills occur naturally through daily life and are acquired through communicating and learning from how others communicate rather than through formal coursework. One student (Interviewee I04) shared that they had been consciously practicing self-reflection since high school, but even then, learning occurred primarily through experience rather than planned training programs. Others echoed this pattern, noting that they simply "go with the daily flow" (I02), developing

communication and collaboration skills by navigating real situations with peers, classmates, or senior colleagues at the workplace. From student reflections, soft skill development is heavily tied to case-based experiences as one student phrases it as “putting themselves into new situations”, where soft skills are developed through adaptation rather than formal instruction (I03).

Limited Engagement with University Resources Students recognized that universities offer various resources related to soft skill development, such as online modules, resume or cover letter reviews, networking events, and mock interviews. However, few of them engaged with these on-campus resources. When describing why, students frequently noted a mismatch between resources and their needs. For example, one student described workshop experiences as “more presentation than practice,” emphasizing that the “knowledge is there, but the execution isn’t” (I01). They shared preferences for smaller, more personalized sessions rather than large events for the general student population. Another student (I03) shared that they were aware of available services but had limited interest and the perception that resources were not tailored to their goals or programs of study.

Students also pointed out a similar mismatch in interactions with career development offices. As one respondent put it, career advisors often seemed to be following a list and “just checking off boxes” (I01), reducing the perceived value of these tools. This disconnect led many students to utilize university resources to keep their progress on track but not systematically develop their skills. When ranking different resources in terms of the importance in practicing soft skills, students valued more experiences with student organizations, internships, research groups, and team-based coursework. They viewed these experiential and informal approaches as more effective environments for practicing communication, leadership, and collaboration. Several respondents noted that experience in internship provided opportunities that enabled meaningful feedback, observation, and growth—benefits they did not generally associate with advising or general workshops.

Story from the CDO side

Current State of Career Advisor Tools Interviews with career advisors revealed that universities currently lack any formal, systematic mechanism for tracking students’ soft skill development. Advisors across different departments consistently reported that they do not collect data related to soft skills, aside from career event attendance or students’ career experiences. Instead, soft skill data collection remains informal, relying heavily on advisors’ impressions from coaching and student self-reflection. One advisor explained that despite regularly helping students articulate soft skills, they rely on “handwritten notes… just for me and private” to track student development rather than on data systems (I07). Another advisor (I05) shared about a

pilot collaboration across departments at school to measure soft skill competency embedded in different classes. However, the initiative is still in its infancy and not integrated into broader advising workflows. At the university level, advisors described the broader career development ecosystem in the university as decentralized, each school operates independently, which limits efforts to build a unified data system. As one advisor summarized, despite monthly convenings across different career offices, there remains no collaborative effort to track or compare students' soft skill progress across programs (I05). We saw the institutions lack a baseline data capable of capturing the soft skill proficiency or growth of their students.

Organizational and Technical Constraints When asked why such data systems are not in place, career advisors cited significant constraints in career development offices, which we further categorized into organizational and technical barriers. Organization wise, an important limitation stood out to us is the mismatched goal. Career development offices are prioritizing many goals including organizing career events, holding one-on-one coaching that are not solely focused on soft skill training. Career advisors see themselves as a bridge to connect students with employers or alumni by helping students "communicate their skills" (I05). In terms of developing soft skills, career advisors are providing general resources to students for reference. Though services including mock interviews help develop communication skills, they are targeted at employment outcomes. Another important limitation is the staff size. With different priorities and limited size of team, CDOs would not put more effort in soft skills tracking. The advisor clarified that while staff size is an issue, "time is a greater limitation," as advisors are already balancing many priorities to "squeeze soft skills given the time and resources." (I05)

Technical constraints are defined by expectations for what a tool *should* do versus what is currently available. Advisors described existing platforms like Simplicity as "outdated and inefficient" for their daily jobs (I07). Their ideal solution would be a unified platform that incorporates different sources of information. Advisors specifically requested a system that can track student skill proficiency, monitor student engagement (e.g., tracking how many times a student met for interview prep), log prior work experience, and provide tailored external resources for students (I07). As one advisor noted, they "desire a platform that can seamlessly integrate info about students" to supplement their career advising with shareable insights (I05).

Insights about the Tools

Barriers: Concerns Regarding Bias and Validity A major finding from both student and career advisor interviews was a shared skepticism regarding the fairness and accuracy of soft skill assessment. Respondents expressed doubt that a tool could capture the complexity of interpersonal skills, which are "harder to identify than technical skills" (I03). One important insight is both groups explicitly mentioned bias as a potential flaw in assessment tools. An

advisor pointed out that there are biases based on cultural, linguistic, and gender differences attached to the concept of “soft skills”, which are likely to affect how soft skills are perceived and valued. For instance, communication styles vary significantly across cultures, and a tool might penalize international students for differing norms or language proficiency. The skepticism creates a significant barrier for tool adoption; if students believe the tool is "subjective" or "inaccurate," they are unlikely to trust its results and further use them (I07).

Opportunities: Integration and Efficiency Despite these concerns, our interviews highlight specific opportunities to design a tool that aligns with student preferences. First, the tool should be efficient and integrated into classrooms. Students indicated that they would prioritize development tools that are "embedded in existing classes or curriculum" rather than standalone extracurriculars (I03). Integration into courses (e.g. internship classes) was seen as a key motivator possibly due to the students’ time commitment to the tools. For most of our interviewees, students reported they are willing to spend only 15-30 minutes outside their classes on these assessments. And the time is highly dependent on the perceived values of the tools.

Opportunities: Personalized and Actionable Results We also found that the quality and format of the tool's output is an important factor for adoption. Students find assessment results most helpful when they are specific, personalized, and actionable. Building on that, students would like to receive detailed and behavior-based feedback that moves beyond a simple score. For example, respondents highlighted the need for "specific examples from the tool" (I05) and "advice on improvement" (I07) rather than abstract proficiency levels. And as the advisor envisioned, “It’s not like there’s one set metric… it’s: how do I help them demonstrate the evidence that they have experience with that skill?” (I05). Students want the tool to act as a bridge, connecting their assessment results to concrete next steps, such as specific workshops or resources that directly address their identified gaps.

Recommendations and Next Steps:

This section gives recommendations based on what we found earlier in the project and through interviews, focusing on what Salesforce could do through their Education Cloud. These suggestions are realistic and emphasize high trust and solid integration into the existing academic ecosystem. All of the following proposed recommendations take into account: the potential of students to engage with the system, the extent to which it works with advisor workloads, and the degree to which it can be effectively used within the frameworks of Salesforce Education Cloud.

Integration Over Addition

We recommend integrating the collection of soft skills evidence with academic and advising activities, rather than simply adding new activities. Students often develop soft skills as a result of their participation in coursework, team projects, and internships. However, those skills often go undocumented and unrecognized. Evidence collection connected to activities that students are required to do addresses development where it occurs while adding minimal effort or hassle.

To be effective, embedded evidence collection should be as seamless as possible. The collection of evidence should be tied to specific deliverables, as open-ended reflection exercises can be time-consuming. For example, students can be prompted to reflect on a capstone or internship project to illustrate specific instances of communication or problem-solving without additional effort. Most importantly, this should not be evaluative in nature; the outcomes should be framed as evidence of learning. This approach works nicely with Salesforce Education Cloud's lifecycle model, enabling evidence collection in an organized manner without requiring faculty to manage considerable amounts of raw data. The risk of generic answers is manageable with specific prompts that target behaviors.

Growth-Oriented Feedback

The second recommendation is to offer growth-oriented feedback that is not tied to a numerical soft skill score. Students and advisors both showed considerable skepticism about numeric scoring. Especially in cases where the scoring criteria is unclear or suspected to be culturally biased. Numeric scores don't always capture all the nuance, and when a student comes from an underrepresented background or is an ESL learner, it may affect trust.

Feedback that frames skill achievement with instructional examples over time is better aligned with what it's like to actually experience skill development. Feedback is more useful when it shows how someone is improving over time, rather than judging them with a score or label. Students need to know the behaviors that the feedback is referring to and the reason it was presented to them. This makes feedback more of a tool to manage anxiety as opposed to a source of it. Growth pattern reports offer advisors a resource to work off of during advising sessions. Although some might think that qualitative feedback is less objective, this concern can be addressed with criteria that demonstrate the connection between feedback and visible behaviors.

Credibility as a Design Constraint

The next recommendation revolves around viewing credibility as an essential design constraint instead of something that emerges later. During the project students evaluated soft skill tools based on whether the outcome resulted in meaningful growth beyond the classroom. Badges or certificates were often seen as less valuable, with many students viewing them as symbolic escapism. Just because a badge exists doesn't mean it carries academic or employer recognition. Thus credibility needs to come first in the design strategy, it should not be an afterthought added through branding.

Credibility can be built through showcasing soft skills alongside existing structures such as: credit bearing coursework, required degree milestones, or program-level benchmarks that already carry institutional weight. Soft skill work matters more to students when it's connected to real classes that count toward their degree. It's also important to communicate evidence with terminology that is employer recognizable as opposed to academic language - making it easier for students to put it on their resume or talk about it in interviews. Salesforce does not have to directly certify soft skills to support this. Instead, Education Cloud can help institutions organize student experiences and translate them into skill descriptions that align with how employers talk about those skills. This assists institutions with the process of documenting student experiences. Provided that credibility is seen as a design must-have rather than a stretch goal, Salesforce can assist in designing strategies that students will perceive as legitimate.

Synthesis and Impact

Looking at all three of these recommendations together it becomes clear that they rely on each other. Incorporating soft skill evidence into the work students do is the first step, they will be able to do skill tracking seamlessly through their daily activities. From there we prioritize the integration of the feedback into students' work - specifically feedback centered around growth that is meant to build on constructive support without triggering distrust. And most importantly, throughout this process credibility will remain as a design constraint furthering student trust and engagement.

The correct implementation has the potential to improve the engagement of students' soft skills. It will allow them to view soft skills as integrated into their work rather than tacked on as an afterthought. Advisors benefit as well. Their workload remains the same and they do not have to spend time on messy note taking as they will receive structured reports. Salesforce Education Cloud has an opportunity to address the gap that most universities have. These recommendations do not over automate, and appreciate the boundaries of all stakeholders involved.

Limitation

Despite our considerations there are still limitations. It is difficult to fully eliminate the presence of bias due to soft skills' implicit nature. Measuring complex skills accurately may be difficult due to its intangible and qualitative nature. Adoption may also vary depending on the disposition of the student and the quality of the evidence depends on how good the prompts are. Not being able to predict soft skills is ok. Marketing these limitations improves our credibility.

Additionally, there are opportunities for future research to build on these findings. In STEM programs we can test the embedded evidence collection to measure student engagement over time. We can also measure the impact of these models by comparing models where advisors lead versus where students lead to see what works best. Looking at outcomes after graduation would

help validate if this approach has value for employers. Overall these recommendations show a consistent theme. Effective soft-skill support doesn't require creating brand new systems. We need to create systems that support the visibility and credibility of informal soft-skills. By focusing on integration Salesforce has the opportunity to assist institutions with a long-standing challenge without additional pressure on students and advisors.

Conclusion

Based on the initial problem posed by Salesforce, we focused on how to help students track the development of their soft skills, which included measuring the starting level of their soft skills and how they grew over time. We sought to create a strategy that would track students' soft skill growth by providing specific feedback; be credible to employers; engaged students; reduce biases in evaluations; and is low-cost to implement. These criteria stemmed from our interviews and affinity mapping which found that students desired actionable feedback and not merely numerical assessment results; that students would be motivated to use a tool that was trusted by employers; and that both students and career advisors were concerned about the potential biases an assessment tool that may make its feedback unhelpful. The criteria also served as our limitations as aimed to adhere to our users' expressed needs. Our resulting solution was to design an experiential learning soft skill assessment tool that would be integrated within Salesforce's Education Cloud platform. The tool would help students practice soft skills through scenario-based exercises; assess their performance to measure their level of specific soft skills; and share personalized, targeted feedback to help students develop their soft skills and track their growth over time.

Our proposed solution primarily benefits students as it is their skills that we are tracking and providing recommendations to improve; however the tool will also greatly benefit career advisors as well. During our interviews with career counselors a pain point they expressed was that due to the difficult to measure nature of soft skills, identifying a student's soft skills and their proficiency was a lengthy process. Coupled with limited availability of advising appointments, it could take a long time for career advisors to judge with accuracy what soft skill strengths and weaknesses a student had in order to help them. Soft skill assessment reports, like the ones our solution would produce, would provide a good starting point for career advisors to quickly understand what a student's current skill level is. This would enable advisors to hit the ground running, reducing the time spent identifying soft skills and allowing that time to be allocated to helping students further develop their skills instead. The tool will also provide benefits to hiring managers and employers as they could similarly provide a frame of reference for the skill level of their potential employee.

While all three of our key stakeholders were represented – STEM graduate students, career advisors, and hiring managers – the distribution of representation was not equal. Of our seven interviews four were with STEM graduate students, two were with career advisors from the University of Michigan, and one was with a hiring manager. The majority of our participants were also either students or staff at the University of Michigan's School of Information, with one of our student participants being from University of Michigan's School of Public Health and one of the career advisors being from the Ford School of Public Policy. If we had additional time we would have liked to gather a greater amount of participants to increase our sample size and represent a larger population; recruit an equal amount of individuals from each stakeholder group to equally balance perspectives; and also include more individuals from various other STEM based schools in the University of Michigan to expand our perspective further beyond the School of Information.

In addition to broadening the scope of our participants, another further action we would have liked to carry out was to develop an interactive prototype of what our proposed tool would look like. By developing this prototype we would have been able to refine pain points that arose in the implementation that are difficult to notice when it is solely conceptual. Additionally, it would've allowed the team at Salesforce to better visualize and understand our ideas.

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Appendix

Data Collection

Identification Details	Source Type	Date of Data Collection	Team Member Info/Role	Description	Location
I01	*Interview*	*10/19/2025*	*Feifan/interviewer Kelly/Notetaker*	*Interview with UM's School of Public Health Graduate student*	*Zoom*
I02	*Interview*	*10/21/2025*	*Kelly/Interviewer Moe/Notetaker*	*Interview with UMSI Graduate student*	*1326 Leinwebber*
I03	*Interview*	*10/23/2025*	*Moe/Interviewer Jonas/Notetaker*	*Interview with UMSI Graduate student*	*1240 Lienwebber*
I04	*Interview*	*10/27/2025*	*Jonas/Interviewer Feifan/Notetaker*	Interview with UMSI Graduate student	*1328 Lienwebber*
I05	*Interview*	*10/29/2025*	*Feifan/Interviewer Jonas/Notetaker*	*Interview with career advisor from UMSI's Career Development Office*	*Zoom*
I06	*Interview*	*11/2/2025*	*Jonas/Interviewer Kelly/Notetaker*	*Interview with hiring manager*	*Zoom*
I07	*Interview*	*11/5/2025*	*Kelly / Interviewer Jonas/Notetaker*	*Interview with career advisor from University of Michigan's Ford School of Public Policy*	*Zoom*
Survey	Survey	12/8/2025	*Jonas/survey designer*	https://forms.gle/64VNxL4wkgvdoaM5A	*Online*