PIDP: 3260

PROFESSIONAL PRACTICE

Instruct

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Feedback Instrument Rationale

Introduction

Overall Purpose of the Instrument

This rationale describes the features of a feedback instrument (in this case a questionnaire) that serves as a *summative* evaluation tool, administered at the conclusion of the 48-week web development course. The primary purpose of the feedback instrument is to comprehensively assess the overall effectiveness of the course, gathering student perceptions to inform substantial curriculum improvements and refine future course design for enhanced learning outcomes.

Understanding the distinctions between summative and formative feedback instruments is crucial, as the characteristics of both are key elements in designing effective evaluation tools. Here's a breakdown of those characteristics:

Summative:

- **Purpose:** End-of-unit/course evaluation.
- **Timing:** After instruction.
- **Focus:** Overall achievement/proficiency.
- **Examples:** Exams, final projects, standardized tests.
- **Characteristics:** High stakes, graded, comparative.

Formative:

- **Purpose:** Monitor learning *during* instruction.
- **Timing:** Ongoing, throughout a unit.
- **Focus:** Identifying learning gaps & guiding improvement.
- **Examples:** Quizzes, observations, drafts, peer review.
- **Characteristics:** Low/no stakes, descriptive, actionable.

Design

Rationale: Layout, Formatting, And Directions

The survey's design prioritizes respondent experience through a concise and visually accessible layout. Fair margins and strategic whitespace enhance readability and prevent a cluttered appearance. Ample, yet bounded, response space encourages thoughtful answers without imposing an undue burden on participants. Directions are brief and unambiguous, minimizing cognitive load and maximizing completion rates. These elements align with best practices for survey design, fostering engagement and data quality.

Having said that, there are overlapping top/bottom borders on some of the form elements, which lend the design a mildly ungainly feel. These visual impairments are easily resolvable with a few further CSS adjustments, which can be completed before the form is published.

Analysis of Individual Items

Design

a. Purpose of the Item:

This item assesses students' understanding and practical application of core design principles (visual hierarchy, layout, colour theory, typography etc.) within a web development context. It aims to reveal where students excel in aesthetic application *and* where they struggle to translate design theory into effective user interfaces.

Identifying these needs allows for targeted adjustments to the curriculum, potentially revisiting foundational design concepts or offering more practice in applying them to web layouts.

This connects to a vision of effective instruction as it emphasizes not just *knowing* design principles, but *doing* them effectively in a practical environment.

b. Type of Response Required:

An ordinal scale is used to measures *relative* position (ranking) but not precise differences between values.

It's not a standard Likert scale because those typically have a neutral midpoint (e.g., "Neither Agree nor Disagree" or 'Moderate') and equal positive/negative options. This scale is asymmetrical – it lacks a direct equivalent to a "no change" or neutral position *between* the low and high categories. It does, however, include a "Does Not Apply" category, which is excellent for measuring feedback because it accounts for situations in which respondents would select a "Moderate" response for categories that do not apply.

The ordinal scale is helpful for learning outcomes because it gauges perceived change. Comparing "before" & "after" responses show self-reported knowledge *increase* (or decrease!). Analyzing shifts in distribution across categories reveals overall course effectiveness.

Performance

a. Purpose of the Item:

This assesses the student's ability to optimize websites for speed and efficiency, directly measuring their understanding of concepts like image optimization, code minification, caching, and efficient resource loading.

Analyzing student performance against Chrome's Performance metrics reveals their ability to diagnose performance bottlenecks and implement solutions – crucial skills for real-world web development.

It also informs instruction by pinpointing areas where students lack understanding, whether in specific optimization techniques or in the broader principles of efficient web architecture. This aligns with a vision of preparing students for production-level work where performance is a critical deliverable.

b. Type of Response Required:

A Chrome audit response will be a *recorded Chrome audit score* (First Contentful Paint, Largest Contentful Paint, Cumulative Layout Shift, etc.).

Asking students to measure their before/after understanding will give them direct insight into how much they feel they know about Chrome performance audits.

SEO

a. Purpose of the Item:

This item assesses students' understanding of Search Engine Optimization principles. Specifically, it evaluates their ability to structure content, utilize semantic HTML, and implement meta tags to improve a website's visibility in search results.

Chrome audit metrics for SEO (e.g., meta description coverage, schema markup) are excellent indicators that help identify gaps in student knowledge. This item addresses the view that a complete web developer understands how users *find* a website, not just how it functions.

b. Type of Response Required:

Similar to Performance, the primary Chrome audit response is a *recorded Chrome audit score* (specifically focusing on SEO metrics).

Asking students to measure their before/after understanding will give them direct insight into how much they feel they know about Chrome SEO audits.

Accessibility

a. Purpose of the Item:

This item is critical, assessing the student's ability to create websites usable by people with disabilities. It evaluates their understanding of WCAG guidelines, semantic HTML usage (for screen readers), alternative text for images, and sufficient colour contrast. Again, Chrome's accessibility audit will be central to evaluation, aiming to measure adherence to accessibility best practices.

This ties directly to a vision of ethical web development and creating inclusive digital experiences.

b. Type of Response Required:

The course emphasizes a *Chrome Audit accessibility score* coupled with a *checklist of specific accessibility features implemented* (e.g., "Provided alt text for all images", "Ensured sufficient colour contrast"). The checklist provides a focused mechanism for verifying implementation of essential features, while the audit score offers an overview of overall accessibility.

Asking students to measure their before/after understanding of these tools and documents will give them direct insight into how much they feel they know about Chrome Accessibility audits.

Best Practices

a. Purpose of the Item:

This encompasses broader coding standards, security considerations, and maintainability. The Chrome Audit's "Best Practices" section identifies potential vulnerabilities, outdated dependencies, and adherence to modern web standards. This evaluates a student's understanding of production-ready code.

It helps inform instruction to modern dev workflows. This links to a commitment to teaching students to write not just *working* code, but *high-quality, maintainable* code.

b. Type of Response Required:

Similar to Accessibility, the primary Chrome audit response is a *recorded Chrome audit score* (specifically focusing on Best Practices metrics).

Asking students to measure their before/after understanding will give them direct insight into how much they feel they know about Chrome Best Practices audits.

Measuring student feedback on the above instrument items, which leverage the Chrome audit, provides students and instructors with consistent, industry-relevant feedback that reflects expectations students will encounter professionally, while simultaneously providing valuable insights so that instructors can refine the curriculum and enhance the learning experience.

Plan for Analysis And Implementation of Results

write a sentence the summarizes briefly or comments on the effectiveness of the following plan for analysis and implementation of feedback survey results. The sentence should transition nicely into the conclusion

Pilot Plan:

Prior to any larger scale implementation, the instrument will be piloted with a small group of approximately 15 students who have recently completed the web development course. This pilot serves several purposes:

1. **Instrument Validation:** Assesses the instrument's effectiveness in measuring the intended outcomes (design, performance, SEO, accessibility, best practices) and gathers feedback on its clarity and relevance.
2. **Identify Potential Issues:** Uncovers any technical issues, ambiguities in the instructions, or problems with the Chrome audit process that could affect the results.
3. **Refine the Instrument:** Uses the pilot results to make necessary adjustments to the instrument, ensuring that it accurately measures student learning outcomes and provides actionable feedback.

Analysis Plan:

1. **Quantitative Analysis:** Calculates descriptive statistics (means, medians, standard deviations) for the Chrome audit scores to understand the distribution of student performance across the assessed areas (design, performance, SEO, accessibility, best practices).
2. **Qualitative Analysis:** Analyzes student feedback and self-assessment comments to identify common themes, areas of difficulty, and suggestions for improvement.
3. **Comparison with Baseline Data:** Compares the results from the pilot group with the baseline data collected from previous course iterations (if available) to assess the effectiveness of the instrument in measuring student growth.

Implementation Plan:

1. **Informed Curriculum Adjustments:** Uses the insights gathered from the pilot to refine the web development course curriculum, focusing on areas where students showed significant improvement or struggled.
2. **Instrument Integration:** Incorporates the validated instrument into the course evaluation process, ensuring that it is administered consistently across all course sections.
3. **Ongoing Evaluation and Improvement:** Regularly reviews and refines the instrument based on emerging trends, industry developments, and student feedback to ensure its continued relevance and effectiveness.
4. **Sharing Results:** Disseminates the findings and lessons learned from the pilot and subsequent implementations to relevant stakeholders, including instructors, administrators, and industry partners, to foster collaboration and collective improvement in web development education.

By following this structured plan for analysis and implementation of feedback survey results, the web development course can be systematically refined to address specific areas of student need, leading to improved learning outcomes and more effective preparation of students for the demands of industry.

Conclusion

The rationale for this summative feedback instrument highlights its potential to assess student learning outcomes in a web development course effectively and comprehensively. By incorporating Chrome audits, self-assessment, and targeted questions, the instrument provides a nuanced understanding of students' technical skills and design principles knowledge.

Through its pilot, analysis, and implementation plan, this instrument is poised to make a significant contribution to the continuous improvement of the web development course. Its emphasis on measuring students' understanding and application of key concepts, such as design, performance, SEO, accessibility, and best practices, aligns with the course's learning objectives and the demands of the web development industry.

Moreover, the instrument's design allows for flexibility and adaptability, ensuring it can be refined based on emerging trends and industry developments. By regularly reviewing and updating the instrument, educators can guarantee that the course remains relevant and effective in preparing students for careers in web development.

Ultimately, this summative feedback instrument has the potential to positively impact student learning outcomes, inform data-driven curriculum decisions, and advance the field of web development education.

AI Models Used In This Report: The ideas, structure, writing, and editing in this paper were performed by the author. Various AI models were used to research, collect, and verify data, format arguments, and grammatically structure content. Models used include: Qwen 2.5 235b a22b, Google Gemma 3 27b IT, Meta Llama 3.1 405b Instruct, Qwen 14B, Meta Llama 3.1 8B, Mistral AI Devstral Small 2505. Chat-GTP-5, Google Gemma 3 4b.