



Automatic accessibility checks on online courses

Supporting teachers in getting their homework done

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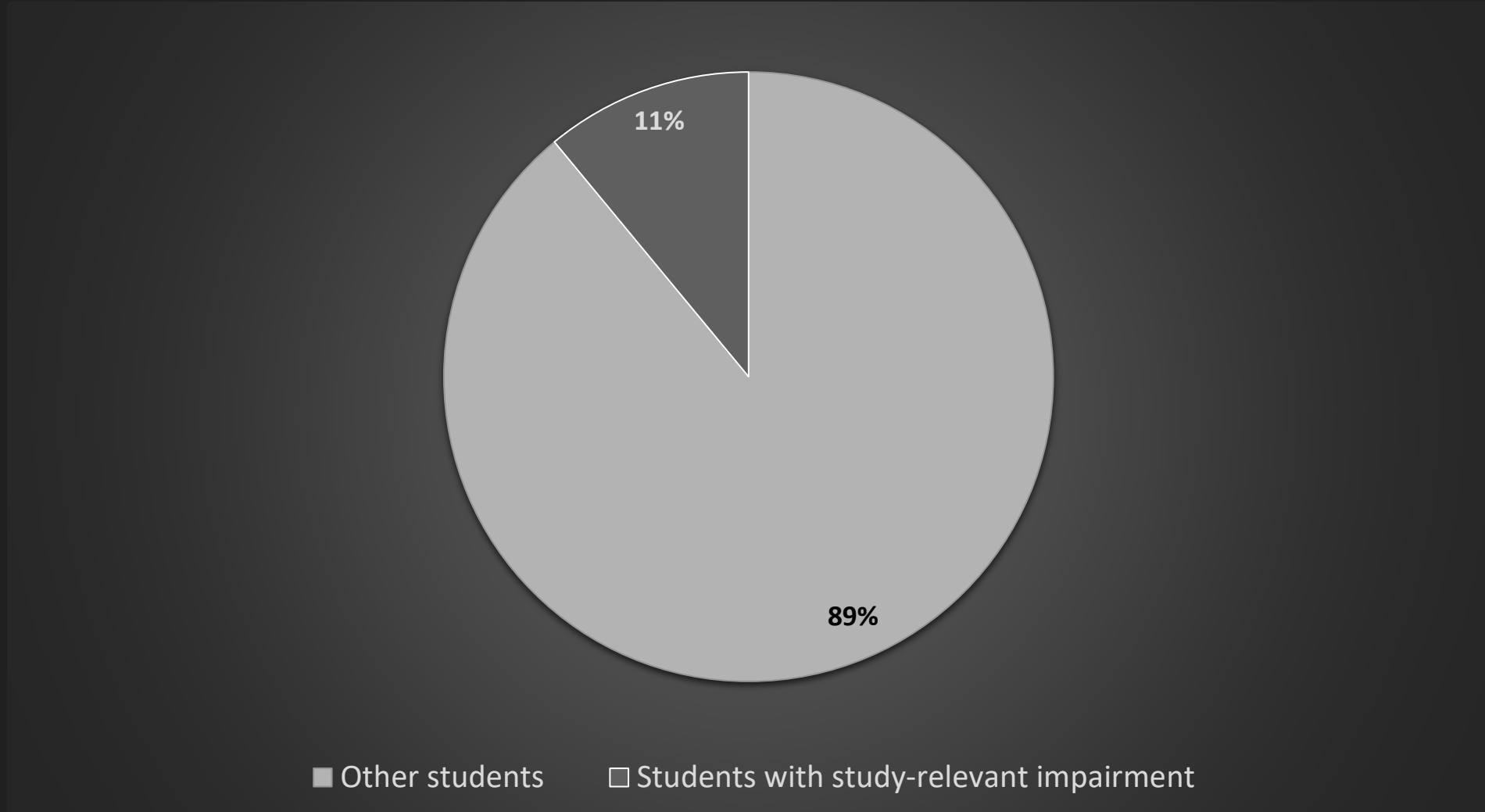
Competence Center on Digital Accessibility

Current situation

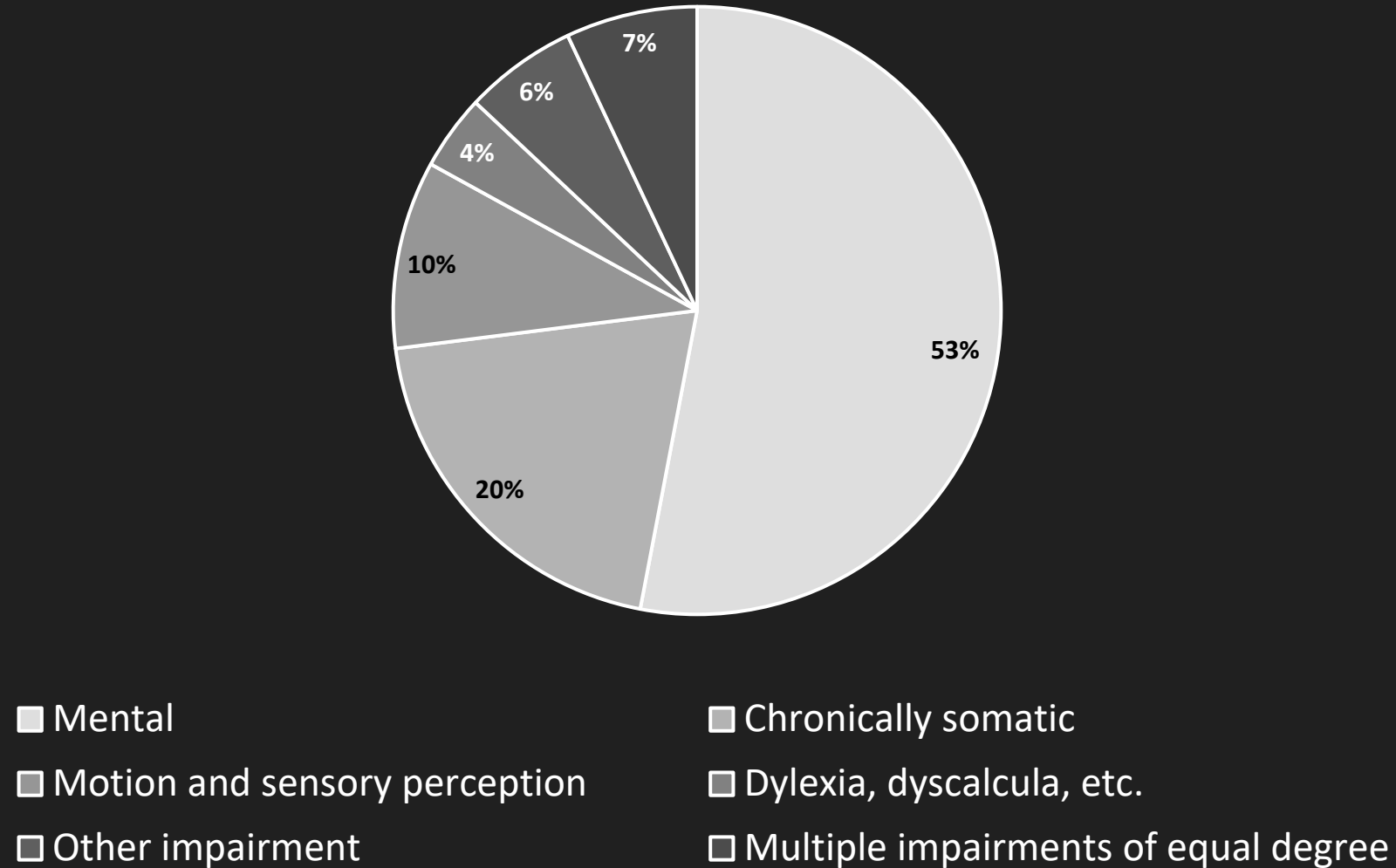
- Team of 7 persons (as of today)
- Strategy: Support universities to become proficient in digital accessibility
- Services: Consulting and checking of websites / documents / mobile apps
- Webinars, Newsletter
- URL: <https://barrierefreiheit.hdm-stuttgart.de/>



“Students with Impairment” in Germany



Study-Relevant Impairments



“Side Effects” of Digital Accessibility

- Accessible Design is good design **for all**
- Better learning **for all**
- Competencies in digital accessibility for students
- Legally correct

Research Project SHUFFLE

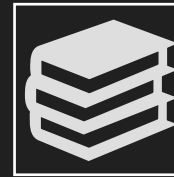


SHUFFLE
= “Higher Education Initiative
Digital Accessibility for All”



**Development and evaluation
of digital accessibility
measures in HE**

Aug 2021 – July 2024



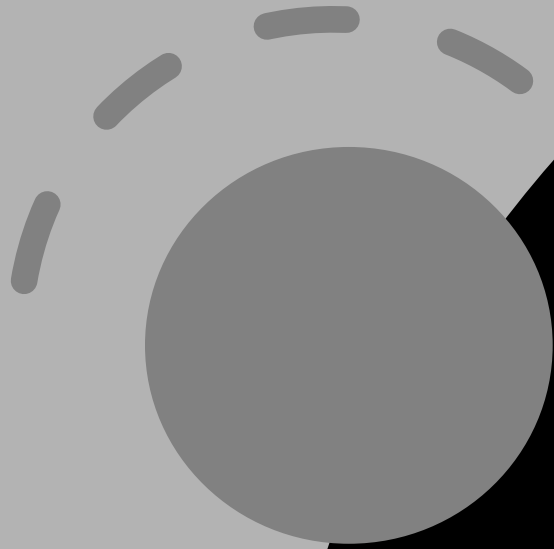
Cooperation partners

Stuttgart Media University
Bielefeld University
Heidelberg University of Education
Freiburg University of Education



**Funding from “Stiftung
Innovation in der
Hochschullehre”**

3 Mill. €, 11 FTE



12 Measures for Digital Inclusion in Higher Education

SHUFFLE Makes It Work



Accessible learning materials

- Slides
- Scripts
- Learning Management System (Moodle, ILIAS, etc.)
- Students as e-tutors
- **Accessible docs benefit all students!**

Video Recordings

- Make up for a missed lecture
- Rehearse for exam
- Replay in any speed
- **Video recordings benefit all students!**





Verbal Descriptions (a.k.a. audio descriptions)

- Describe diagrams and screenshots as part of the presentation
- **All students benefit from good explanations!**



Live Captions & Translation

- Automatic speech recognition (AI) achieves usable results
- Manual edits can improve quality
 - Editing = learning?
- Automatic translation into other languages (easy language?)
- **Many students benefit from captions and translations!**



Interactive Learning Script

Multimodal script in multiple tracks, mutually cross-linked:

- Video (including AD)
- Slides
- Captions
- Translations
- Learning as dialog (cf. Google Duplex)
- **All students benefit!**

A close-up photograph of a green leaf with a large, irregular hole eaten into it. Several black ants are visible on the leaf, some near the hole and others further away. The leaf's veins are clearly visible, and the surface has a slightly glossy texture.

Learning Analytics

- Teachers can identify problem areas and sweet spots
- Learners get recommendations on learning strategies (e.g., personalization, regular breaks)
- Watch out for privacy issues wrt pwds!
- **In particular, weak learners benefit**



Automatic Checking of Learning Materials

- Regular monitoring for online courses, including documents
- Automatic tools can discover 30-40% of all error types [1]
- **Many students benefit from accessible learning materials**

[1] Burkard, A., Zimmermann, G., & Schwarzer, B. (2021). Monitoring Systems for Checking Websites on Accessibility. *Frontiers in Computer Science*, 3, 1-17.
<https://doi.org/10.3389/fcomp.2021.628770>



Accessibility Policy

- Top-down strategy
- University-wide strategy
- Public announcements
- **Beneficial for those
who care about a11y**



Accessibility Maturity Model

- Continuous measurements
- Set (intermediate) goals
- Identify and target weak spots
- Report to management
- **Beneficial for students and employees with disabilities**

Teaching on Digital Accessibility

- Include topics of digital accessibility in the curricula
- Offer certificates to students and teachers (e.g., IAAP)
- **Good for all students to acquire skills in digital accessibility**

A light-colored puppy and a brown tabby kitten are shown in profile, facing each other. The puppy is on the right, looking down at the kitten. The kitten is on the left, looking up at the puppy. They are positioned in front of a rough, textured rock wall with some orange lichen or moss. The lighting is soft, highlighting the fur of the animals.

Interaction Spaces with Pwds

- Goal: Invoke empathy and understanding
- Ideal: Conversation with real pwds
- Second ideal: Meet interactive virtual pwds
- **Beneficial for all students (“know your user”)**

A photograph of several dolphins leaping from the water, creating a large splash. The dolphins are dark grey and sleek, with their dorsal fins visible above the water. The water is a deep blue-green color, and the scene is captured in a way that emphasizes the motion and energy of the dolphins.

Networking

Exchange between
universities

- Share experiences
- Share learning materials
- Share tools & platforms

Support For Teachers

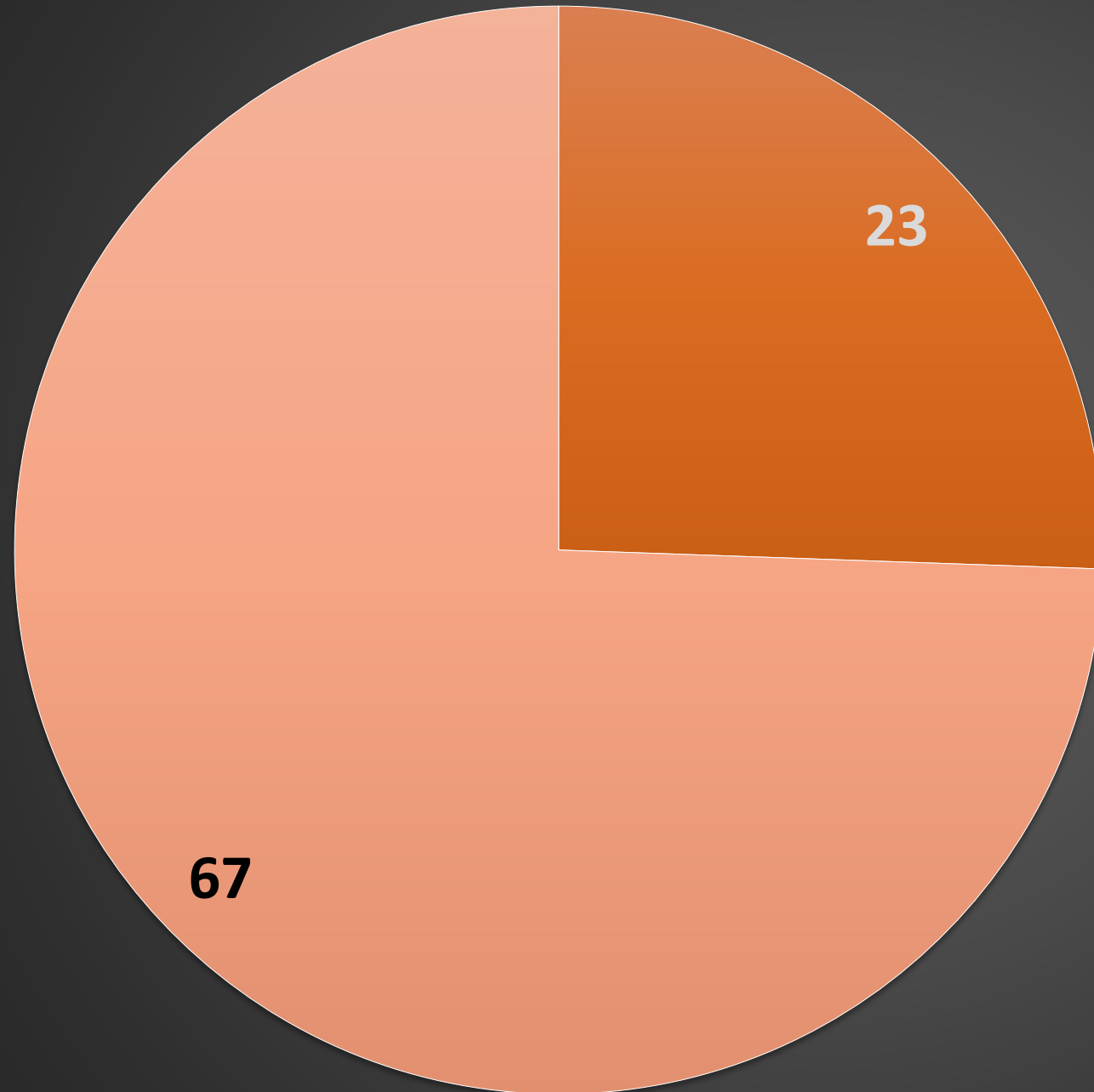
- Online courses
- Slides, documents, assignments, etc.
- Constantly changing
- Errors happen by ignorance and by accident

Idea: Use automatic checking tools



**Automatic tools do NOT
detect all errors!**

Overall detectable errors by criteria

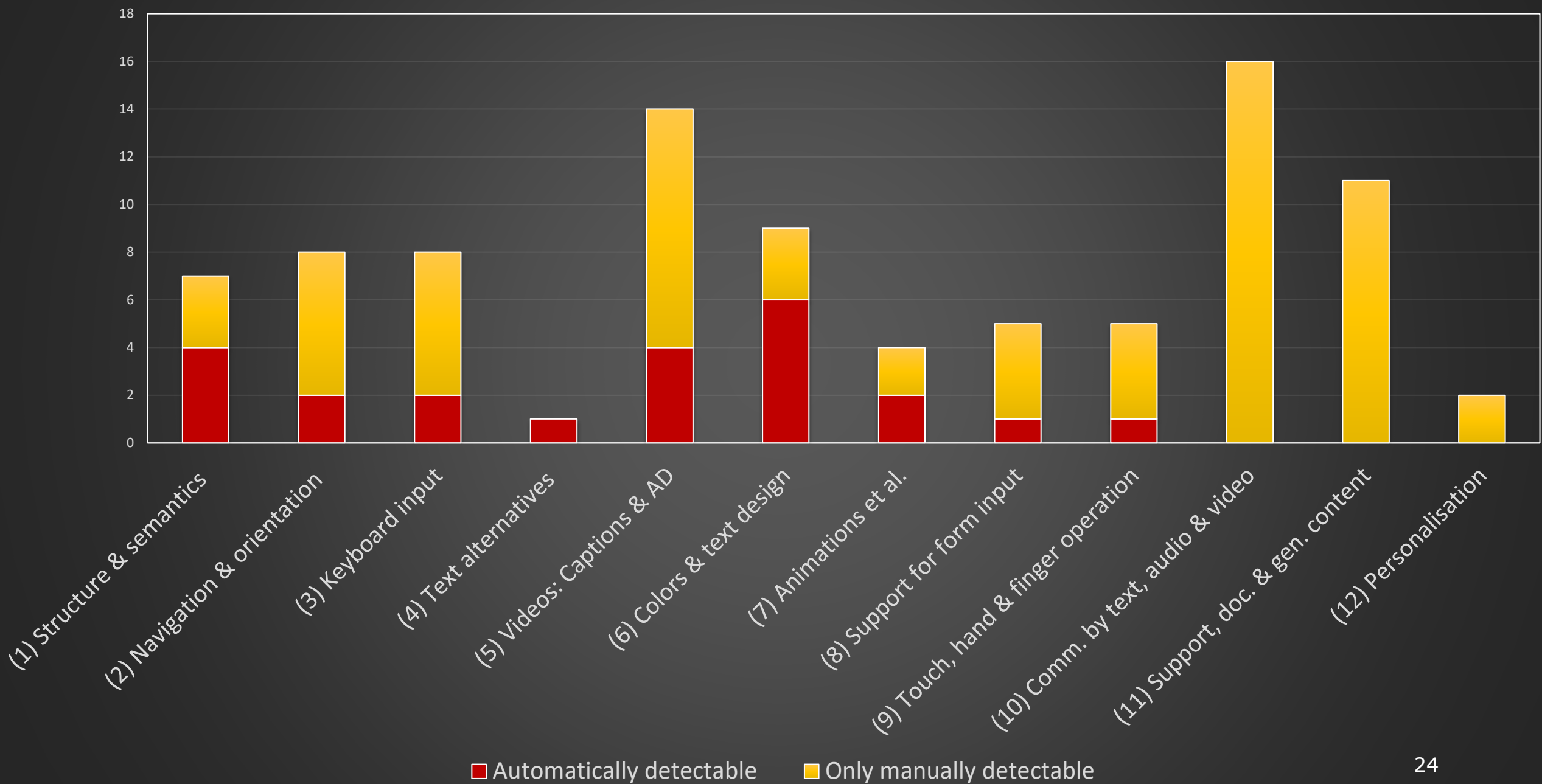


- Automatically detectable
- Only manually detectable

Criteria By Categories

- (1) Structure & semantics
- (2) Navigation & orientation
- (3) Keyboard input
- (4) Text alternatives for images & non-text content
- (5) Videos: captions, audio description & sign language
- (6) Colors & text design
- (7) Animations, distractions, flickering, timeouts & interruptions
- (8) Support for form input
- (9) Touch, hand & finger operation
- (10) Communication by text, audio & video
- (11) Support, documentations & generated content
- (12) Personalisation

Any Online Course: Overall Detectable Errors (Categories)



[Startseite](#) / [Kurse](#) / [Allgemein](#) / [Educational IT](#) / [EduIT_Sammlung-Digitales-Lehren-und-Lernen](#)

 Druckfreundliche Version



- **Eingabe von Schlüsselbegriffen** (Volltextsuche berücksichtigt auch Fließtext)
- Klick auf Tags der **Schlagwort-Wolke** an der rechten Seite (für Mobilgeräte: am Seitenende)
- Filtern nach **Kategorien**:
 Lehre planen · Verwenden · Organisieren · Produzieren · Kommunizieren · Kollaborieren · Aktivieren
 Support

Suchen ☒ Volltext-Suche

Alphabetisch Nach Kategorie Nach Datum

Sie können das Glossar über das Suchfeld und das Stichwortalphabet durchsuchen.

A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | **Alle**

Seite: **1** **2** **3** **4** **5** (Weiter)
Alle

A

(Zuletzt bearbeitet: Montag, 16. August 2021, 10:46)



Durch die Mitgliedschaft beim DFN (Deutsches Forschungsnetz) kann Adobe Connect von Beschäftigten der HdM kostenfrei genutzt werden.

Um eine Webkonferenz zu veranstalten, ist keine gesonderte Registrierung notwendig, der Dienst kann mit den Zugangsdaten des eigenen HdM-Accounts genutzt werden.

Auf <https://webconf.vc.dfn.de> "Anmeldung über DFN-AAI" anklicken, die Hochschule der Medien aus der Liste der Einrichtungen auswählen und einfach mit der eigenen HdM-Nutzerkennung anmelden.

Anmeldung für Veranstalter

E-Mail-Adresse:

Keywords:

What are the Kennecott versions?

[Zurück zum Sammlungs-Start](#)

Audioaufnahmen Autorensoftware

Digitale Barrierefreiheit Digitale Pinnwand

Digitaler Tafelersatz Feedback Fragen

sammeln Gruppenarbeit

Kollaborative Editoren

Lernplattform

Lernvideos Medientechnik

Methodik Moodle Online-

Lehre Online-Lernen Online-Speicher

Open Source Quiz Rechtliches

Ressourcen Screencasts

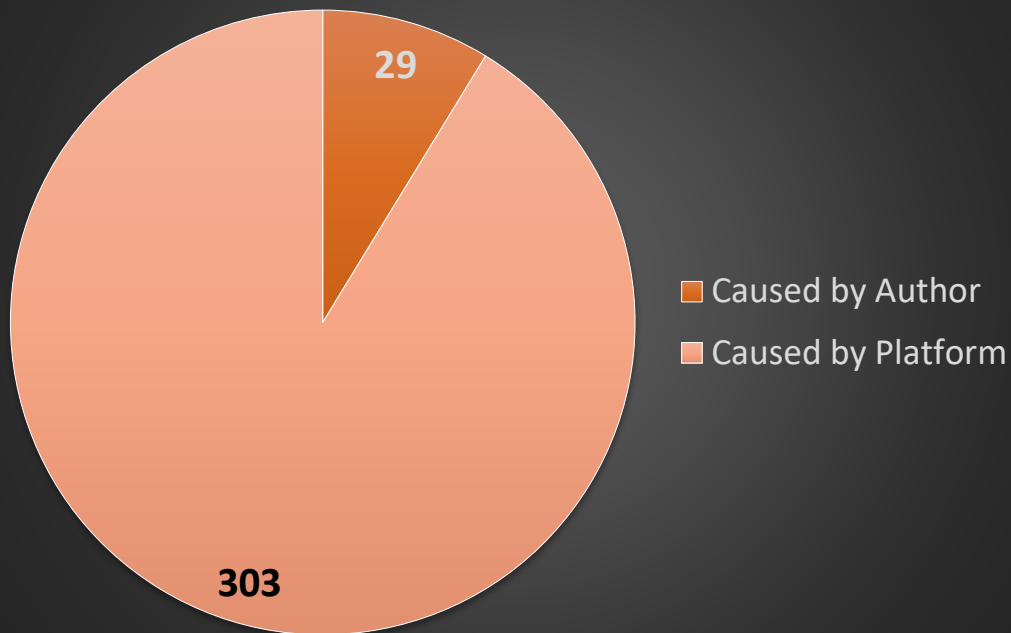
Termine Themenvergabe

Whiteboards

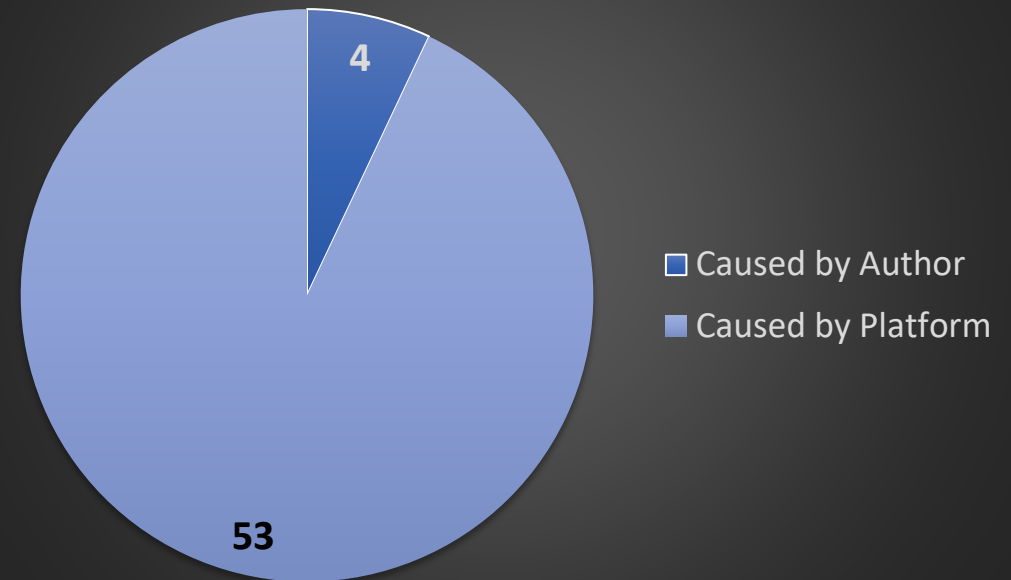
Sammlungs-Roulette

Sample Moodle Course: Error Instances

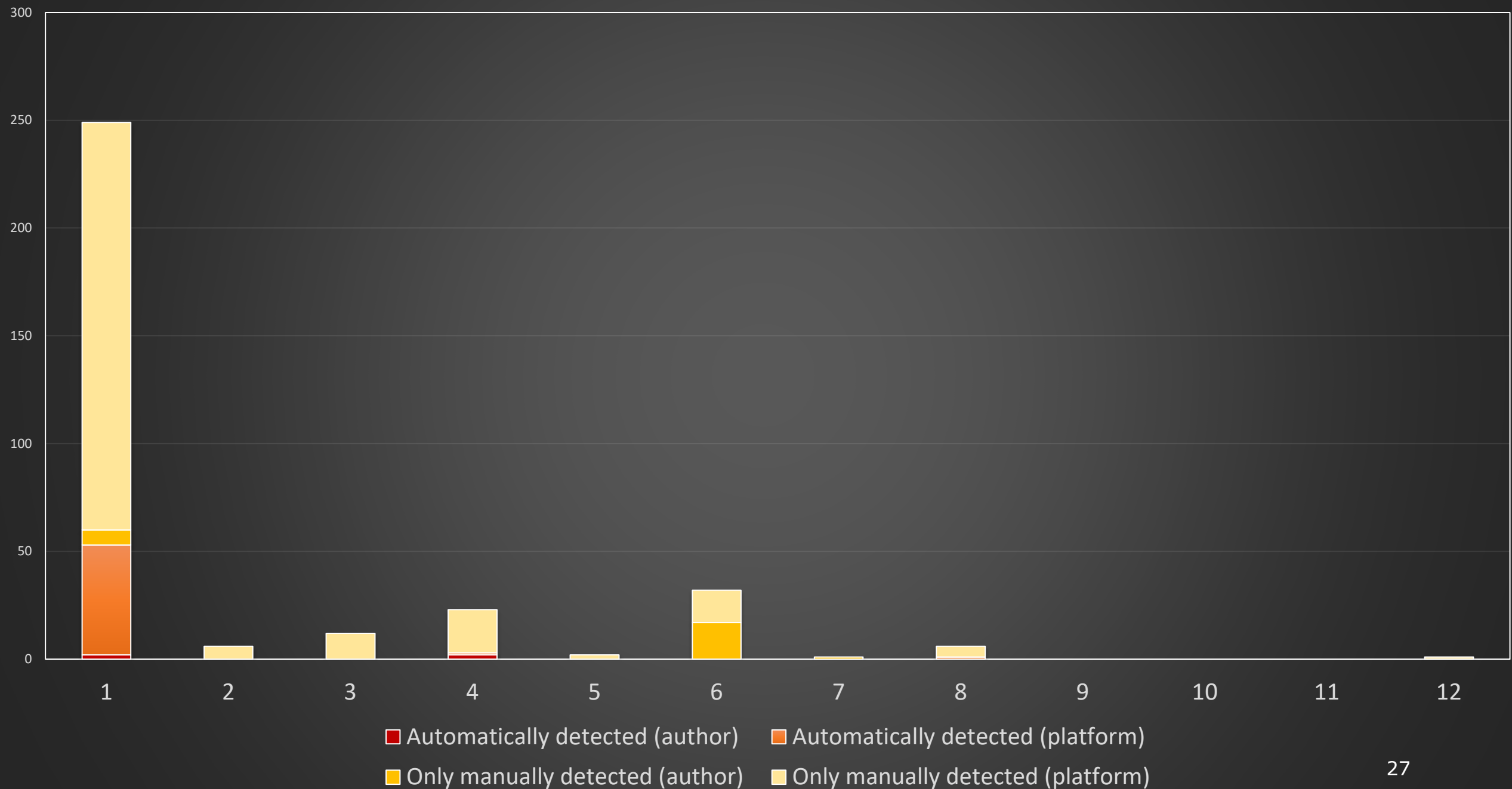
Manually detected errors (instances)



Automatically detected errors (instances)

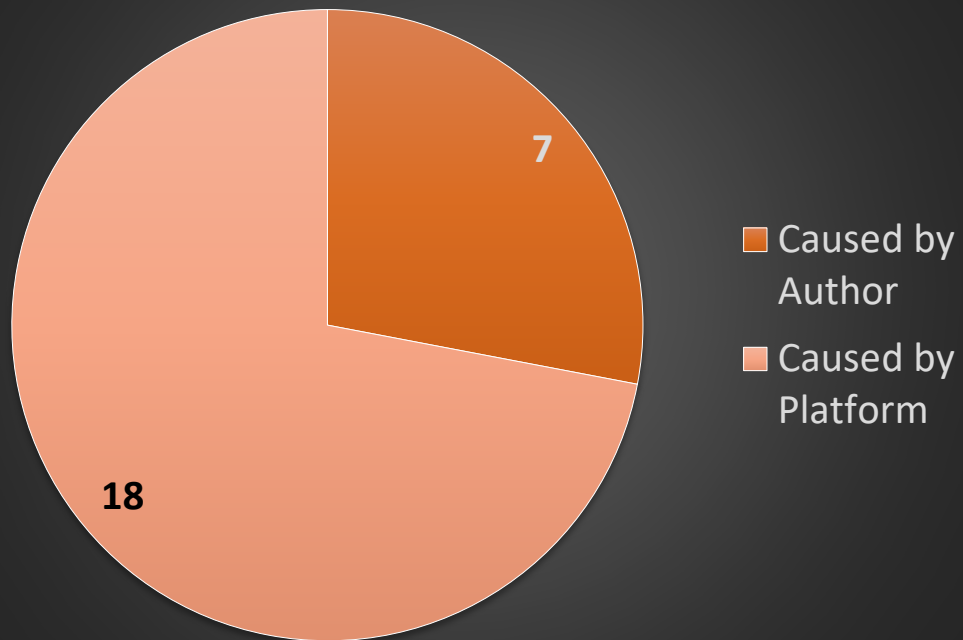


Sample Moodle Course: Distribution of Errors (Instances)

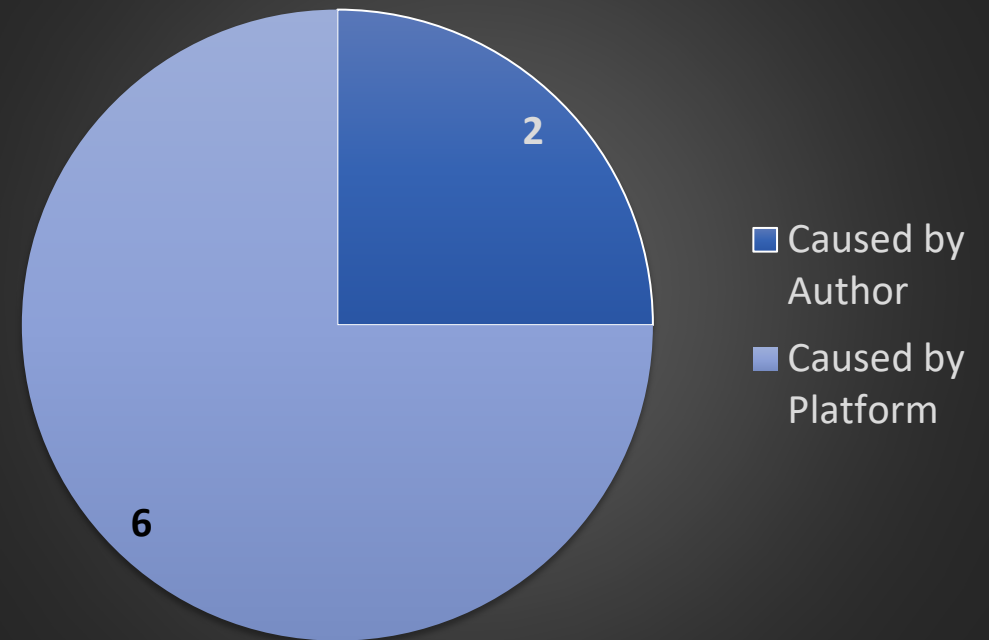


Sample Moodle Course: Error Criteria

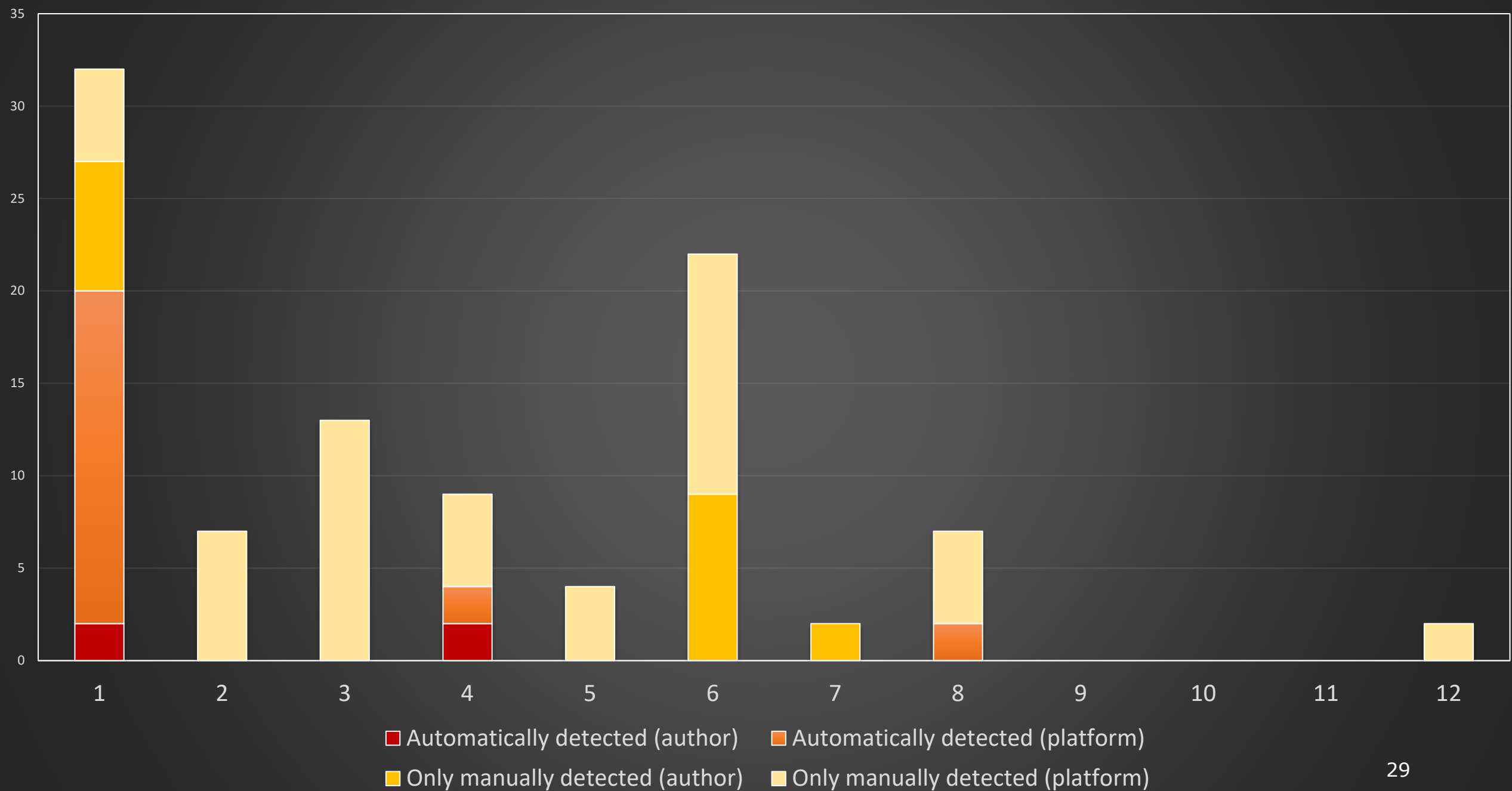
Manually detected errors (criteria)



Automatically detected errors (criteria)



Sample Moodle Course: Distribution of Errors (Categories)





119203a [2020WS] Mensch-Computer Interaktion

Aktionen ▾

Pflicht für Studiengänge MIB und MMB im 2. Semester. Import möglich. Dozenten: Becker-Asano, Zimmermann

Inhalt Info Einstellungen Mitglieder Metadaten Export Rechte Voransicht als Mitglied aktivieren ▶

Zeigen Verwalten Sortierung Seite gestalten

Neues Objekt hinzufügen ▾

Liebe Kursteilnehmer, willkommen im Kurs.

Wenn Sie Probleme haben, der Videokonferenz beizutreten, schauen Sie zuerst in den [Mattermost-Chatraum](#). Dort können Sie auch Ihre Fragen an den Dozenten stellen.

ACHTUNG!



Bitte beachten Sie, dass das Aufzeichnen von Lehrveranstaltungen nur mit Einverständnis der/des verantwortlichen Dozentin/en und gegebenenfalls weiterer Personen zulässig ist, deren Rechte von der Aufzeichnung betroffen sind. Das Einverständnis der/des Dozentin/Dozenten muss ausdrücklich und in Textform erteilt werden. Zudem gelten die Beschränkungen des Urheberrechtsgesetzes (UrhG) und anderer Gesetze auch für und im Rahmen von Lehrveranstaltungen, die mit Fernkommunikationsmitteln durchgeführt werden. Dies gilt insbesondere auch im Hinblick auf für oder im Zusammenhang mit solchen Lehrveranstaltungen eingesetzte oder bereit gestellte Werke und Datenbanken.

KOMMUNIKATION ▾



Merkblatt

Lesen Sie sich dieses Merkblatt zuerst durch.

pdf 600,5 KB Version: 7 29. Sep 2020, 17:51 Anzahl Seiten: 2

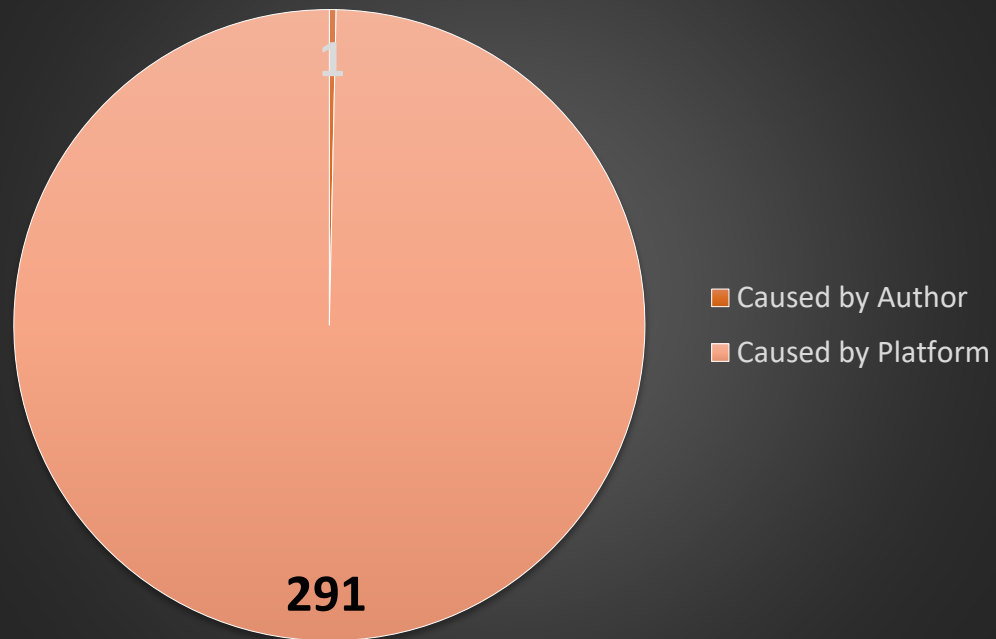


Einladungslink zum Mattermost-Team HCI2020WS

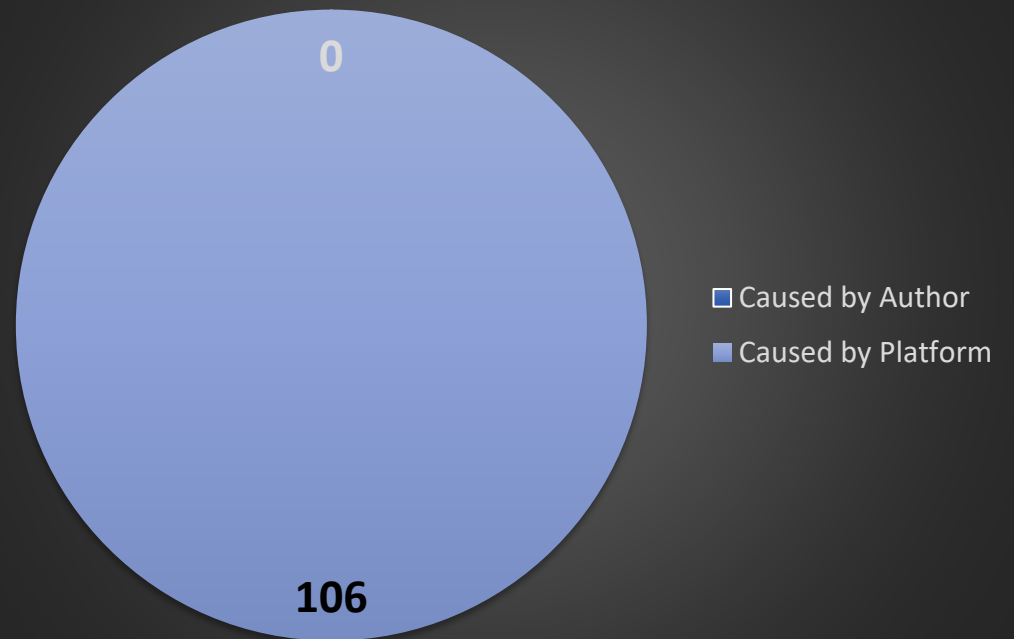
Benutzen Sie diesen Link einmal, um in das Mattermost-Team für diese Vorlesung aufgenommen zu werden.

Sample ILIAS Course: Error Instances

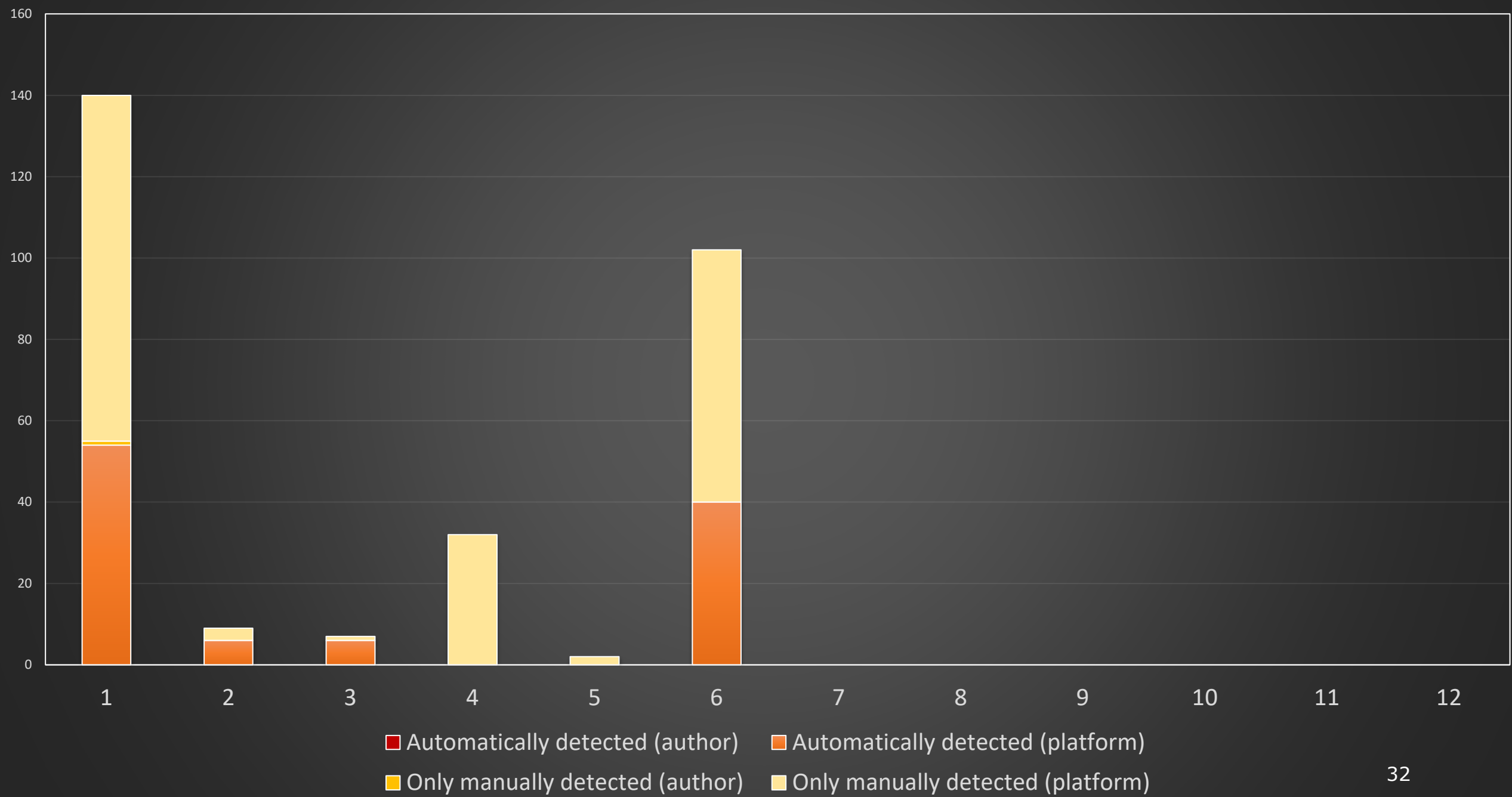
Manually detected errors (instances)



Automatically detected errors (instances)

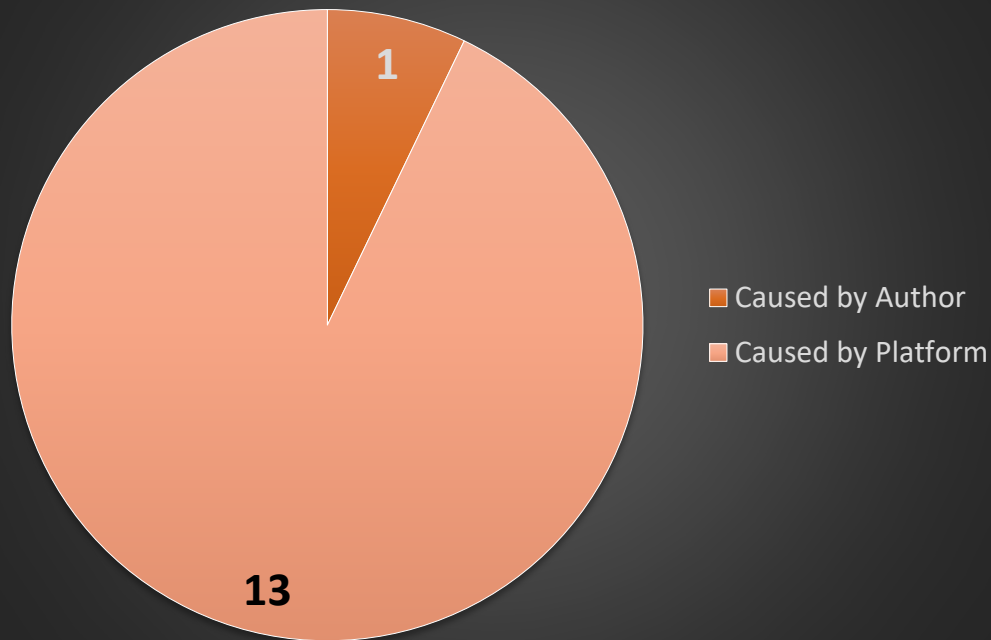


Sample ILIAS Course: Distribution of Errors (Instances)

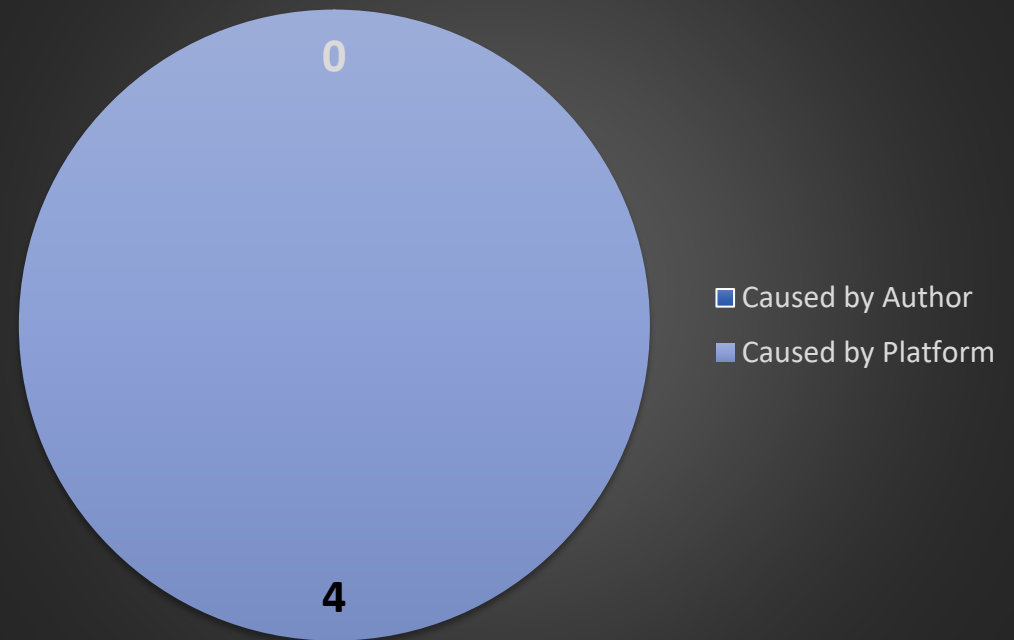


Sample ILIAS Course: Error Criteria

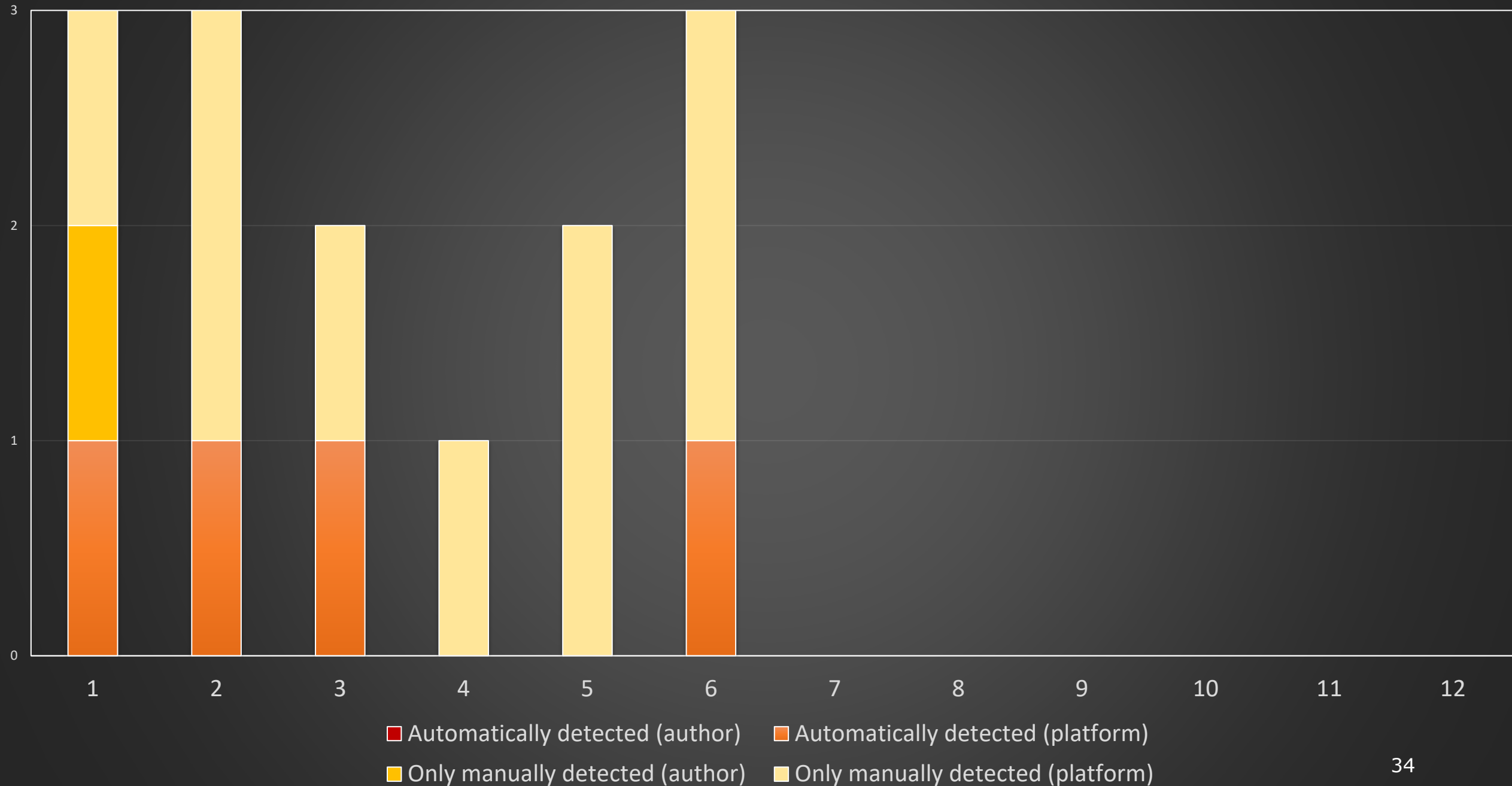
Manually detected errors (criteria)



Automatically detected errors (criteria)



Sample Moodle Course: Distribution of Errors (Categories)



Outlook

- “Worst-case” courses in Moodle & ILIAS
 - If needed re-arrange error categories
- Provide error-free templates in Moodle & ILIAS
- Conduct study with volunteer teachers
 - Bi-weekly siteimprove reports
 - Interventions: Monthly training, based on occurring error categories
 - Measure success

Questions?

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